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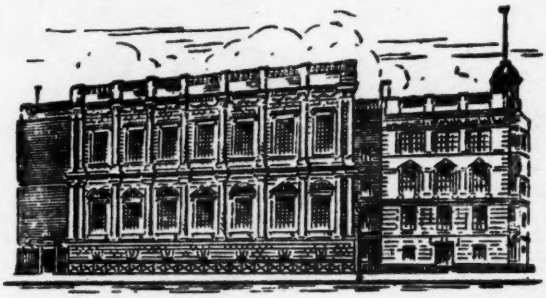

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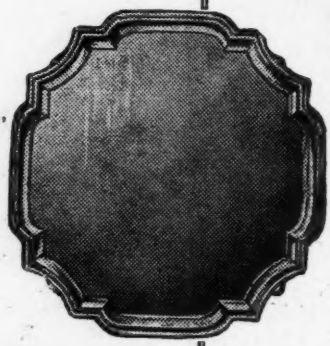

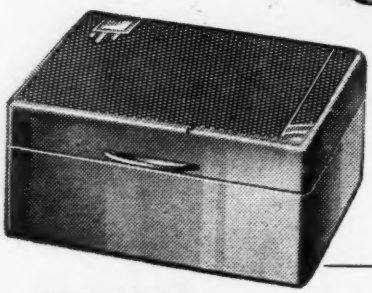

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CONTENTS FOR MAY, 1934.

	PAGE
SECRETARY'S NOTES	vii-x
FRONTISPIECE: A VOLUNTEER COAST ARTILLERY CORPS, 1878 ..(*facing*)	215
GOLD MEDAL ESSAY (MILITARY), 1933. By BREVET MAJOR F. A. S. CLARKE, D.S.O.	215
COAL *versus* OIL FOR THE NAVY. (*Lecture*). By ENGINEER VICE-ADMIRAL SIR R. W. SKELTON, K.C.B., C.B.E., D.S.O.	241
THE DEVELOPMENT OF THE FLEET AIR ARM. (*Lecture*). By WING COMMANDER W. R. D. ACLAND, D.F.C., A.F.C., R.A.F.	260
WEAPONS OR WAR. By BREVET LIEUTENANT-COLONEL E. E. CALTHROP, M.C., *p.s.c.*	280
AIR FORCES IN THE GREAT WAR: SOME STRATEGICAL LESSONS. By MAJOR OLIVER STEWART, M.C., A.F.C.	289
THE VALUE OF OBSOLETE WARSHIPS AND WEAPONS. By COMMANDER W. B. ROWBOTHAM, R.N.	294
ECONOMIC ASPECTS OF EMPIRE DEFENCE. (*Lecture*). By C. E. FAYLE ..	301
THE DEFENCE POLICY OF THE UNITED STATES. By IGNATIUS PHAYRE ..	317
ARMIES OF THE AIR: A FRENCH VIEW	331
LAND MINING IN FRONTIER WARFARE. By BRIGADIER-GENERAL E. B. MATHEW-LANNOWE, C.M.G., D.S.O.	339
THE NAVY RECORDS SOCIETY. By ADMIRAL SIR HERBERT W. RICHMOND, K.C.B.	345

Continued on page 3.

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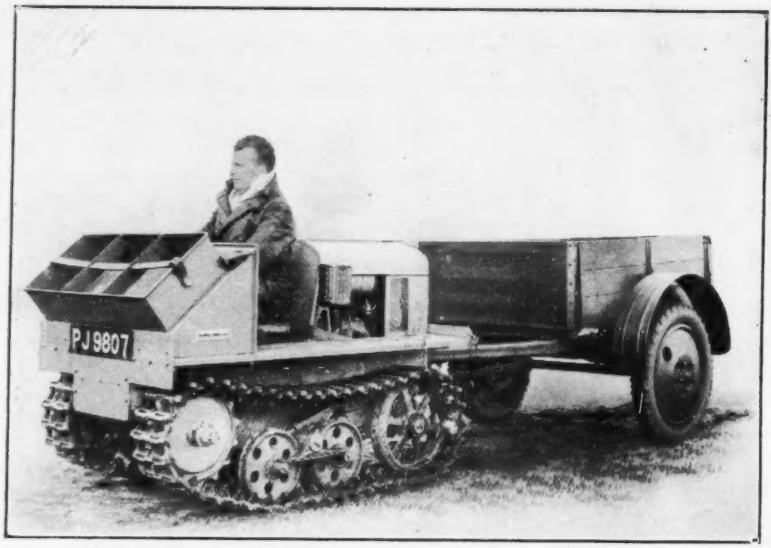

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CONTENTS—continued from page 1.

	PAGE
RICHARD KEMPENFELT: A GREAT CHIEF OF STAFF. By VICE-ADMIRAL W. M. JAMES, C.B.	348
BATTLE HONOURS. By MAJOR T. J. EDWARDS, M.B.E., F.R.Hist.S.	357
BI-LINGUAL BORDERLANDS OF HISTORIC GERMANY. By VAUGHAN CORNISH, D.Sc., F.R.G.S.	367
THE INTERNATIONAL SITUATION:—	
DISARMAMENT NEGOTIATIONS	381
THE PROBLEM OF THE SAAR	384
THE FAR EASTERN SITUATION	388
THE WAR IN THE CHACO	391
CORRESPONDENCE	392
GENERAL SERVICE NOTES	394
NAVY NOTES	404
ARMY NOTES	416
AIR NOTES	429
AIRSHIP NOTES	439
REVIEWS OF BOOKS	440
ADDITIONS TO THE LIBRARY	447
REPORT OF THE ANNUAL GENERAL MEETING	i-xii

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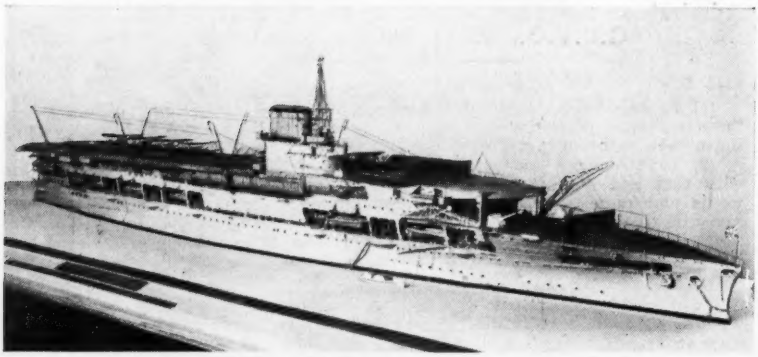

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General Sir Robert Whigham, G.C.B., K.C.M.G., D.S.O., has been elected Chairman of the Council for the year 1934–1935.

Vice-Chairman of the Council.

Admiral Sir William Goodenough, G.C.B., M.V.O., has been elected Vice-Chairman of the Council for the year 1934–1935.

Honorary Member.

Major-General H. C. Thacker, C.B., C.M.G., D.S.O., has accepted service as the Honorary Member of the Council representing Canada in succession to the late General Sir A. W. Currie, G.C.M.G., K.C.B.

New Members.

The following officers joined the Institution during February, March and April :—

ROYAL NAVY.

Vice-Admiral R. M. Colvin, C.B., C.B.E.
Paymaster Commander T. Y. Dobson, O.B.E., V.D., R.N.V.R.
Lieutenant E. V. St. J. Morgan, R.N.
Sub-Lieutenant H. D. Troughton, R.N.
Paymaster Midshipman D. E. Jenkins, R.N.
Acting Sub-Lieutenant R. G. M. Collins, R.N.
Captain W. H. Darwall, D.S.O., R.N.

ROYAL MARINES.

Lieutenant J. Lampen, R.M.
2nd Lieutenant M. Y. Dobson, R.M.

ARMY.

Lieutenant G. A. Fowler, Royal Scots Fusiliers.
Brigadier H. N. North, D.S.O., late R.E.
Major R. d'E. Hill, late R.A.P. Corps.
Lieutenant H. E. C. de Chassiron, R.E.
Lieutenant C. H. B. Allen, Royal Ulster Rifles.
2nd Lieutenant A. M. Bonham-Carter, Northumberland Fusiliers.
Major F. Fairer Smith, late R.A.S.C.
2nd Lieutenant E. Y. Dobson, The Leicestershire Regiment.
2nd Lieutenant B. W. Wood, Oxford & Bucks L.I.
2nd Lieutenant P. K. M. Stewart, King's Own Scottish Borderers.
Lieutenant W. H. Sutherland, The Cameronians.
Brevet Major F. A. S. Clarke, D.S.O., The Essex Regiment.
Lieutenant J. C. Smith, R.A.

Lieutenant-Colonel C. St. Q. O. Fullbrook-Leggatt, D.S.O., M.C., Royal Berkshire Regiment.
2nd Lieutenant N. P. Dawnay, The Lincolnshire Regiment.
Captain C. M. Baldwin, The Middlesex Regiment.
Lieutenant W. H. Lambert, East Lancashire Regiment.
Captain C. A. Richardson, I.A.
Lieutenant P. E. C. Tuckey, The Middlesex Regiment.
Captain T. L. Wall, M.C., 16/5th Lancers (R. of O.).
Lieutenant R. B. Littledale, King's Royal Rifle Corps.
2nd Lieutenant R. D. Cardiff, The Scots Guards.
2nd Lieutenant R. S. P. Home, The Scots Guards.
2nd Lieutenant J. D. C. MacRae, The Scots Guards.
2nd Lieutenant A. D. Murray, The Scots Guards.
Lieutenant J. C. d'A. Dalton, R.A.
Captain J. Spence, M.C., I.A.
2nd Lieutenant R. de M. Grant Watson, The Scots Guards.
2nd Lieutenant P. de Robeck, The Durham Light Infantry.
Major M. K. Wardle, D.S.O., M.C., The Leicestershire Regiment.
Captain R. E. Holloway, M.B.E., R.E.
Captain A. G. Raleigh, M.C., The Leicestershire Regiment.
2nd Lieutenant T. A. Davis, The East Surrey Regiment.
2nd Lieutenant G. C. H. Wortham, The East Surrey Regiment.
Lieutenant F. M. V. Tregear, K.O.S.B.
Captain A. F. L. Clive, Grenadier Guards.
Lieutenant J. F. K. Ponsford, The Queen's Royal Regiment.
2nd Lieutenant G. W. York, The Loyal Regiment.
2nd Lieutenant H. J. Pulley, 11th London Regiment (T.A.).

ROYAL AIR FORCE.

Flight Lieutenant H. M. Mellor, R.A.F.
Squadron Leader Ryder Young, R.A.F.
Pilot Officer F. C. Scott, R.A.F.

Special Facilities for Junior Officers.

The attention of Members is invited to the special facilities which now exist for Junior Officers to join the Institution :—

Commissioned Officers of the Home, Dominion, Indian and Colonial fighting Services and their Reserves, of three years or less seniority as such ; Midshipmen, R.N., R.N.R. and R.N.V.R. ; and Naval, Military and Air Force Cadets, are admitted to Membership without Entrance Fee on payment of the first annual subscription of £1 5s.

Gold Medal Essay (Naval), 1934.

The following subject has been selected :—

"To consider in all its aspects the minimum size of the capital ship demanded by modern conditions of warfare."

A leaflet giving the rules governing the competition will be forwarded on application to the Secretary.

The following essay has been received :—

"Mundaeque parvo sub lare pauperum coenae."

MUSEUM.

Special Exhibition of Aircraft Models.

The Wellington Exhibition is being closed on 26th May. A Special Exhibition of Aircraft Models depicting the development of aviation from earliest times to the present day Royal Air Force is being arranged, with the support of the Air Ministry and the Department of Overseas Trade. It will be opened on Tuesday, 19th June.

The models will be displayed in seven scenes, which will include: the first experimental types; pioneer aircraft; Royal Naval Air Service; Royal Flying Corps; Fleet Air Arm; Army Co-operation; Fighters and Bombers; and some of the latest developments in civil aviation.

Naval Badges and Crests.

It is desired to develop the Institution's collection of Naval Badges and Crests and gifts of these of boat and note-paper sizes respectively will be greatly appreciated.

Additions.

(8671-2) Collection of twenty-four engraved portraits of famous Admirals and Generals.—Purchased.

(8673) Arctic Medal awarded to Paymaster T. W. Cotsell, R.N., who took part in Sir John Franklin's second Expedition to the Arctic.—Presented by T. W. and A. L. Cotsell.

(8674) Collection of twenty medals.—Presented by Colonel A. S. Bates, D.S.O., T.D.

(8675) Shoulder-belt plate of the 3rd Loyal Birmingham Volunteers (1798); helmet badge of the 89th French Regiment (Peninsular period).—Presented by Colonel S. Jervis.

(8676) Report sent to the Admiralty announcing the destruction by Flight Sub-Lieutenant Warneford of a Zeppelin and destruction of two Zeppelins in their sheds at Evere; small piece of Warneford's Zeppelin; bomb-releasing wire from machine with which Flight Sub-Lieutenant Mills destroyed a Zeppelin.—Presented by Major O. G. G. Villiers, D.S.O.

(8677) Diorama of the Battle of Fleurus, 26th June, 1794.—Presented by Colonel C. de W. Crookshank, M.P.

(8678) Peninsular medal with four clasps.—Presented by G. Marshall Griffith.

(8679) Small scale model of H.M.S. "Sans Pareil," captured from the French, 1st June, 1794.—Presented by Mrs. Hart Dyke.

(8680) Two pieces of Stafford ware representing the Duke of Wellington and General Havelock.—Presented by Her Majesty Queen Mary.

(8681) Collection of Crimean War relics.—Presented by Mrs. C. T. Parsons.

(8682) Three coins of the South African Republic.—Presented by Mr. G. Sheppard.

(8683) Officer's helmet plate as worn by the Duke of Edinburgh's Own Edinburgh Artillery Militia in 1881.—Presented by Major J. R. Peploe.

(8684) Miniature portrait of General Sir John Malcolm.—Presented by Miss U. Low.

(8685) Tunic of the 12th Light Dragoons, 1820.—Presented by Major-General W. H. Greenly.

(8687) Artillery spotting glasses captured from the Turks at the Battle of Shargat.—Presented by Colonel R. J. Woulfe-Flanagan.
(8688) Medals and decorations of General J. Upperton.—Presented by Major S. Upperton.
(8689) Piece of the ribbon which tied the Boer declaration of war in 1899.—Presented by Mrs. McNalty.
(8690) Buttons worn by members of a dinner club instituted by officers who had served under the Duke of Wellington.—Presented by F. C. Cobb.
(8691) Collection of boats' badges.—Presented by Major C. J. ffoulkes.
(8692) Uniform of the 11th Hussars.—Presented by the Marquess of Cambridge.
(8693) Collection of Czecho Slovakian Medals, Great War.—Presented by the Czecho Slovakian Ministry.
(8694) Brush made from the tail of one of the Duke of Wellington's chargers.—Presented by Madame K. Bearn.
(8695) Bust of the Duke of Wellington.—Presented by Miss A. Martin.
(8696) Head of a German soldier painted by Sir William Orpen as a target for the Canadian Corps School of Sniping, Mont des Cats, in 1916.—Presented by Major N. A. D. Armstrong.

Attendance.

The amount taken for admission during the past quarter was :—

£70 17s. 6d. in February.
£80 16s. 6d. in March.
£208 13s. 6d. in April.

Purchase Fund.

This fund has been opened to assist in the purchase of new exhibits. The Council hope it will receive the support of members interested in the Museum.

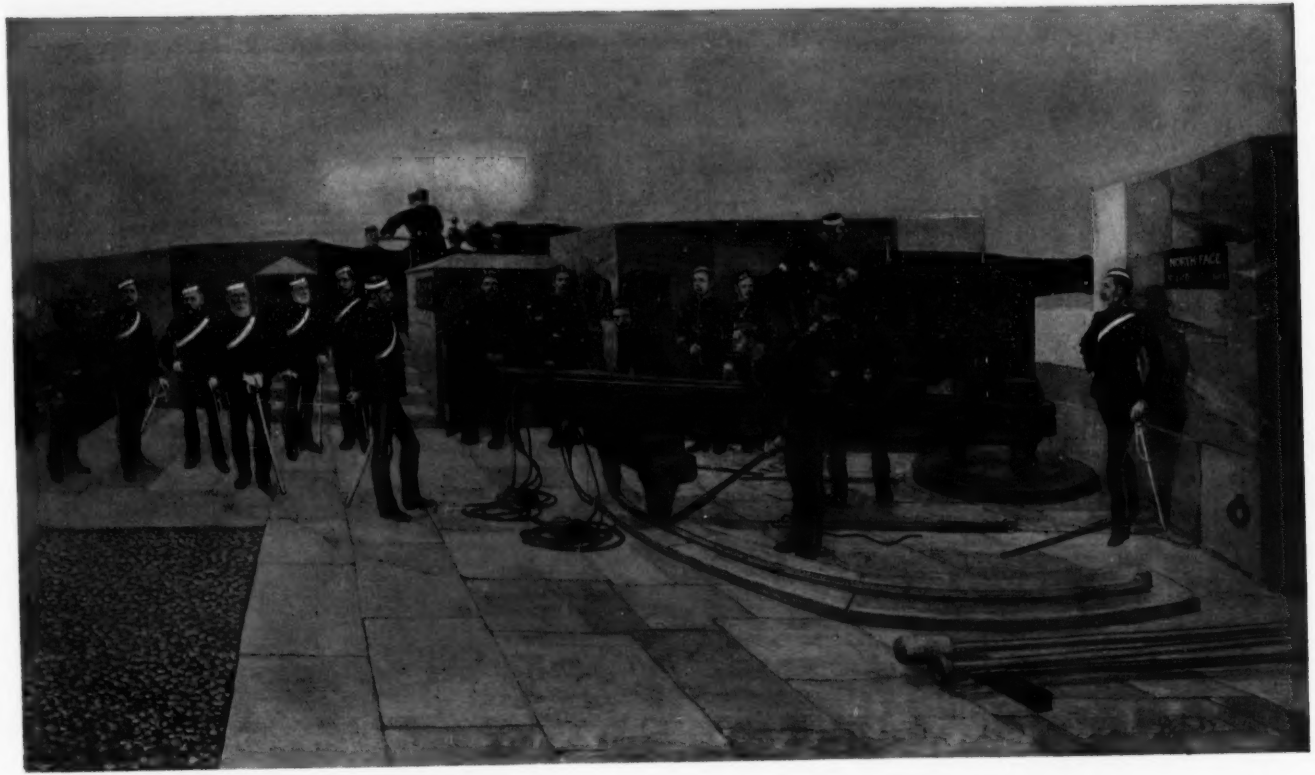
OLD MILITARY UNIFORMS AND COLOURS.

The Council of the Royal United Service Institution, in consultation with the Council of the Society for Army Historical Research, have decided that it is desirable to compile a summary of information on old Military Uniforms, Equipment, Standards, and Colours of the British Army, with a notation as to where such information can be found.

It is hoped to arrange for this project to be carried out mainly by voluntary effort, but it must necessarily involve a certain amount of clerical work, card indexes, and postage, the cost of which is estimated at about £50 per annum. This cannot be met from the normal funds of the Institution or of the Society.

It is hoped, therefore, to raise this sum by individual subscriptions from those interested in the subject.

Subscriptions, however small, will be gratefully acknowledged. Cheques and postal orders should be made payable to " R.U.S.I. Uniforms A/c.," crossed, and sent to the Secretary, Royal United Service Institution, Whitehall, London, S.W.1.



A VOLUNTEER COAST ARTILLERY CORPS, 1878.

THE 15th LANCASHIRE VOLUNTEER ARTILLERY MANNING PERCH ROCK BATTERY AT THE MOUTH OF THE MERSEY.

From a picture in the Royal United Service Institution.

From a picture in the Royal United Service Institution.

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[Authors alone are responsible for the contents of their respective Papers. All communications (except those for perusal by the Editor only) should be addressed to the Secretary, Royal United Service Institution.]

GOLD MEDAL ESSAY (MILITARY) 1933

By Brevet-Major F. A. S. Clarke, D.S.O., The Essex Regiment.

SUBJECT:

"Assuming that it may be necessary in war to employ part or whole of the Territorial Army overseas so as to produce within the shortest time a field army fully trained and equipped, and organized to include the necessary non-divisional troops; are any changes required in the present peace-time organization, training and equipment of the Territorial Army to meet these requirements."

EXISTING CONDITIONS

THE Great War and its aftermath has resulted in an increase rather than a decrease of our responsibilities, while the world situation is such that the venue of any future armed struggle in which we may be engaged cannot be foreseen to the same extent as was possible during the decade prior to 1914. In spite of this, garrisons abroad, and consequently the size of the Expeditionary Force, have been considerably reduced. This reduction also reacts in another way, since there are now fewer Regular units from which to draw cadres for expansion in war.

Our second-line force, now known as the Territorial Army, emerged from the Great War with a heightened reputation, enhanced traditions and a definite *esprit de division*. This force has also been reduced in establishment, but the policy that it shall be the medium of any future expansion of the National forces has been definitely announced.

The Military Problem

Before considering the various factors affecting the preparation of the Territorial Army for its task of expanding the Expeditionary Force, it is necessary to examine the military problem and our existing organization.

This problem is unlike that of any other Power and the responsibilities of the Regular Army are heavy and diverse. It is responsible for the provision of the British quota for the Army in India and the garrisons on our Empire communications, whilst at the same time being prepared to despatch an expeditionary force to reinforce these troops, or to operate in defence of our interests in any part of the world.

Our Regular formations and units may be called upon to fight any type of enemy from primitive savages to first-class troops under conditions of terrain and climate just as varied. It will be convenient at this stage to classify the tasks involved :

(i) *Imperial Policing.*—Of recent years this term has been used to cover the multifarious duties of the Regular Army in what may be called normal times. This includes not only internal security but also the semi-police duties which have to be carried out by the soldier from time to time in many parts of the Empire, and minor expeditions under all sorts of conditions. These small expeditions are usually undertaken by troops on the spot or brought from the nearest garrison.

(ii) *Major Expeditions.*—These are tasks which would entail the use of one or more mobile divisions from the Expeditionary Force at home, either for use alone or in co-operation with the Army in India, as well as with local garrisons. In certain circumstances—such as a campaign of the magnitude of the South African War—the Expeditionary Force could not suffice and would have to be reinforced.

(iii) *A War of the First Magnitude.*—This would involve the employment of all our resources. But it must not be overlooked that these take time to develop and that the Expeditionary Force may have to take the field at once in support of an ally if the emergency be a continental war, or to support the Imperial Forces elsewhere.

The professional army must be prepared to train and lead the nation in a war of the first magnitude, but in view of its other tasks it cannot he organized simply as a cadre upon which to build a national army. The existing organization, therefore, is designed, so far as political and financial limitations allow, to meet these diverse requirements, and the division, composed of a higher proportion of infantry than is the case in continental armies, is the largest permanent formation. Nevertheless,

preparation is made for the mobilization of a proportion of corps and army troops should these be required.

The Territorial Army is unlikely to be called upon to face such diverse conditions as the Regular Army, but there is always the possibility that the Expeditionary Force will not suffice for even a major expedition. In this case also, Territorial troops would probably be required for duty on the lines of communication—which under such conditions may be long and vulnerable—or to set free Regular units in foreign garrisons. It would, therefore, be a mistake to assume that the Territorial Army is only likely to be employed on the continent of Europe, but as the circumstances which will demand its employment as part of the field army will most probably be those arising out of a war of the first magnitude its organization, equipment and training should be designed to enable its formations to take the field against the troops of a first-class Power. In either case, however, it will be essential for the selected units and formations to be ready for service with the least possible delay.

The Territorial Army To-Day

There are in existence fourteen divisions, sixteen yeomanry and scout regiments, certain cavalry divisional troops and a number of coast-defence and home-service anti-aircraft formations. The only corps or army troops are fourteen field artillery brigades and eleven medium artillery brigades with their appropriate signal sections; eight armoured car companies; and, a few small medical units. While the divisions themselves are organized on the pattern of the Regular formations, they lack some of the divisional units required to complete them to war establishment; the most important deficiency being that of light artillery of which only one brigade is in existence. Thus, the organization falls short of the requirements of a field army, because the proportion of artillery is too low—some brigades do not possess the full number of batteries— and essential ancillary troops are lacking. At the same time, existing units are neither fully equipped with weapons and instruments nor with sufficient mechanical transport for more than elementary training.

The physique of the personnel is, generally speaking, below that of the Regular Army, and "strength" appears to be the criterion by which the success or failure of the Territorial Army is judged.

So far as training is concerned, there is little doubt that the comparative efficiency of the Territorial Army is not so high as it was prior to August, 1914. This is largely due to the fact that there is now so much more to be learnt in the same time. It is remarkable how much was achieved by some units under these conditions; but in peace it is

impossible to approach even the standard of training of a short-service conscript army. The reasons are not hard to find; they have been admirably summarized by a Territorial officer who writes: "Whatever may be the limitations of the Territorials, and we know they are many, believe at least that the causes thereof lie in the following order: lack of time, lack of money, lack of knowledge, lack of keenness. The greatest of all these troubles is the lack of time. There is to-day, speaking chiefly of officers, so much to learn and so little time wherein to learn it."[1] He might also have added "lack of continuity."

Problems on Embodiment

Under the existing organization there are two groups of problems to be dealt with after embodiment to prepare Territorial units and formations to take the field:—

By the War Office.

(*a*) Provision of staffs and assistance from the Regular Army;
(*b*) Provision and issue of arms, equipment, transport, etc., to complete units to war scale;
(*c*) Formation of new units to complete divisions to war establishment and to provide corps and army troops;
(*d*) Arrangements for mobilization and for the absorption of Territorial troops into the Expeditionary Force.

By Units and Formations themselves.

(*a*) Enlistment and training of recruits required to bring existing and improvised units up to war strength;
(*b*) The provision of cadres for draft-finding units;
(*c*) Individual and collective training.

In view of the magnitude of these problems and the limitations of the Territorial Army, as it exists, it is very unlikely that complete formations could reach the standard of an average European army even six months after embodiment. No useful purpose will be served by reiterating the criticisms on this question of delay which have been put forward from time to time ever since the Territorial Force first came into being. Some delay is inevitable. The present object is to ascertain how it can be reduced. Any radical change in our system can be ruled out as impracticable at present, but it is considered that some improvement is possible within existing political and financial limitations, and that this could be secured by a re-organization designed to obviate improvisation on the outbreak of war, by a change in recruiting policy, and by a different outlook as regards training. These questions will now be examined in the succeeding sections; but it must be clear from

[1] See "The Army Quarterly," January, 1931, page 341.

the outset that, owing to financial stringency, new units can only be provided by the disbandment or conversion of others. This may be undesirable from the political point of view, but there is no alternative if the Territorial Army is to fulfil within a reasonable time the role for which it exists. It is also necessary to consider the provision of equipment for the expanded army.

REORGANIZATION

The Expansion of the Expeditionary Force

There appear to be two methods of using the Territorial Army to expand the Expeditionary Force. We can either form mixed divisions, or employ complete Territorial divisions as part of higher formations.

By employing the first method, the five Regular divisions might be combined with ten Territorial divisions to form fifteen mixed divisions. But this course has grave disadvantages:

(*a*) Unless this reorganization could be carried out in the field, which is impossible except in static warfare, there would be no formations available to go abroad until after an interval of several months.

(*b*) The Expeditionary Force would become practically an improvisation because the five Regular divisions must be kept intact in peace for training and for small wars.

(*c*) All the divisions concerned would lose their identities.

A variation of this method would be to use only two of the Regular divisions for combination with Territorial divisions. But this, while not so open to objection as a complete amalgamation, is a half measure and would weaken the original Expeditionary Firce without any particular compensation, as the Regular troops absorbed would only be sufficient to provide the Territorial divisions with one or two units apiece. The idea of an infusion of Regular units, however, should not be lost sight of and will be reverted to later.

The second method envisages the reinforcement of the Expeditionary Force by complete Territorial divisions with their proper complement of corps and army troops. By this means the identity of all divisions would be retained and the field army could be brought up gradually to a strength of some sixteen or seventeen divisions organized in six or seven corps of two or more divisions each. This method is flexible as it is adaptable to the conditions of a colonial war and suitable for a war of the first magnitude when the gradual reinforcement of the field army for which it provides can be made to coincide with the provision of equipment and the increase in the output of munitions resulting from industrial mobilization. On the whole there is no doubt that this is the

better method of the two and is the one which preparation should be made to develop.

It is necessary to digress at this stage to consider how these divisions are to be fitted into the framework of the Expeditionary Force.

The Regular troops at home are formed in five divisions with corps and army troops; there are also several unbrigaded infantry battalions. In certain circumstances it should be possible to form a sixth division from the Mediterranean and other colonial garrisons, provided their duties could be taken over by Territorial troops. It must be assumed that the first five divisions would normally be required to proceed overseas as soon as possible, though under present conditions it is probable that the fifth division could not be mobilized as quickly as the others. The sixth division would probably take a little longer even that the fifth, as its components would have to be relieved and then concentrated at home or in some other central area to be completed and mobilized. If this calculation be accepted, then the original Expeditionary Force would consist of a cavalry division and two corps each of two divisions to be followed by a fifth division and then by a sixth.

The fifth and sixth divisions should form the nucleus of a third and fourth corps, the other divisions and the corps troops being provided by specially earmarked formations and units of the Territorial Army—the First Territorial Contingent—which would be the first reinforcement to the Expeditionary Force. (See Appendix A). The Second Contingent, if required, would consist of the remaining available Territorial divisions with two or three corps headquarters, and the appropriate corps and army troops.

It is considered that only ten or eleven Territorial divisions will be available to form the First and Second Contingents because, as stated above, disbandment or conversion of units is the only way to provide for the new units required and this, it is estimated, will involve the reduction of two divisions. Further, at least one division, or possibly two, must be earmarked for garrison duty at home and to relieve Regular troops abroad to permit the formation of the sixth Regular division. Should circumstances demand a further increase in the number of infantry divisions it seems that they could best be formed from cadres found by the original Territorial units assisted by Regular personnel returned from the Expeditionary Force or sent from units retained in India or other garrisons. If heavy artillery units are to take the field they can only be formed on cadres provided by the coast defence units, the proportion of personnel to be utilized in this manner being dependent on the general situation at sea.

Redistribution of the Territorial Army

It has been seen that the number of Territorial divisions must be reduced from fourteen to twelve to provide for the divisional and non-divisional units required to enable the Territorial Army to expand the field army. The most important of these units are shown in Appendix B.

In abolishing two divisions, however, it is essential to ensure that all infantry regiments continue to be represented in the Territorial Army; that every county contributes according to its capacity; and, that local peculiarities receive adequate consideration. For these reasons two pairs of divisions should be selected from thickly populated areas and each pair combined into one, battalions of the same regiment being amalgamated. A reference to the composition and location of the two Lancashire divisions, for example, will show that this proposal is feasible. The result of this combination would be that six field artillery brigades, and other divisional troops would be available for conversion, while the cost of several headquarters and twenty-four battalions could be devoted to other purposes. Also, in view of the fact that at least twelve of the sixteen yeomanry regiments will be required as divisional cavalry, the 2nd Cavalry Divisional troops can also be made available for conversion. How it is suggested to utilize these units and the saving obtained by reductions is shown in some detail in Appendix B. It may be found that these measures will not suffice to provide for all the administrative and other small units required, but the guiding principle should be that all the units necessary for the First Territorial Contingent should exist prior to embodiment. In the case of the Second Territorial Contingent, the more important units should also exist in peace, the remainder being in cadre form attached to suitable units; for instance, a cadre casualty clearing station might be attached to a field ambulance.

It will be necessary to earmark the divisions of the First Contingent in peace, the selection being based primarily on grounds of efficiency and all-round suitability. Every effort should be made to provide these formations with the latest patterns of equipment, etc., and to post Regular brigade majors to infantry and artillery, the remainder of the staffs being found on embodiment from serving Regular officers. Further, every infantry brigade of this Contingent should receive on embodiment one of the unbrigaded line battalions, the Territorial battalions so displaced being detailed for garrison or line of communication duty after a period of preliminary training. It is considered that the adoption of this course would result in these brigades being fit to proceed overseas earlier than would otherwise be the case and in their being of a higher initial value on joining the field army.

The provision of Territorial tank units and formations is likely to present considerable difficulty. Owing to the limited time available for training in normal times it is doubtful if the value obtained would in any way compensate for the cost of providing and maintaining the necessary material. But on embodiment for a war of the first magnitude it should be possible to convert some or all of the eight armoured car companies into tank units. These would at least have considerable advantage over newly raised units, especially in administration and *esprit de corps*. It might also be desirable to utilize the non-divisional yeomanry regiments in the same way. (See Appendix A).

Composition of Territorial Divisions.

It has been seen that the Regular divisions contain a very high proportion of infantry; this is for reasons peculiar to our military problem. These reasons hardly apply to the Territorial Army, and though it is very desirable that its formations should be of the same composition as Regular divisions, it is considered that some modifications should be introduced particularly as experience has shown that non-Regular infantry are likely to be more dependent on the support of artillery and other arms in mobile warfare than highly trained professional soldiers. There is also the question of the number of weapons with which the infantry is armed, i.e., rifle and bayonet, light automatic, Vickers machine gun, mortar, anti-tank weapon, grenades for different purposes, and the revolver. The mastery of this profusion of weapons is quite impossible in peace and there will inevitably be considerable difficulty in training officers and other ranks after embodiment, as well as in the provision of reinforcements. Some form of simplification is necessary. With this in view it is proposed that infantry brigades should consist of three rifle battalions and one close support battalion of forty-eight machine guns and sixteen mortars. The disadvantage of this is that the organization would differ from that of Regular brigades. But in a war of the first magnitude the difficulty of providing an adequate flow of trained reinforcements may necessitate a similar change being made in the composition of Regular infantry brigades. On the other hand, it is claimed for this organization that, as a result of the simplification in training which would result, there would be a general gain in tactical efficiency; the co-ordination of the fire of machine guns and mortars would be facilitated; and a higher proportion of guns to assaulting units would be obtained. An outline of the proposed establishment and a comparison between a division organized in this manner and the existing division are given in Appendix C.

It may be argued that the introduction of the infantry mortar will obviate the necessity for light artillery in Territorial divisions. But as the mortar lacks the range and weight of shell of the 3.7″ howitzer it is

considered that it will only suffice for what may be styled the very close support of the rifle companies, and if the light batteries be withdrawn field guns will inevitably have to be brought forward to take their place. In any case, light artillery will always be required for small wars.

Personnel of the Territorial Army

It is unlikely that this country will engage in a war of the first magnitude unless the Government has the entire support of the best elements of all classes of the nation. It may be assumed, therefore, that there will be no shortage of men of good type offering themselves for enlistment at the outset. The difficulty lies in providing the cadres to absorb, train and lead these recruits. Many will be taken by the draft finding units of the Regular army, but large numbers will be required by the Territorial army, which, after rejecting its own unfit men should recruit up to war establishment plus a provision for wastage during training.

In order to be prepared for this influx, the ideal is that every serving Territorial should be a specialist or potential N.C.O. It is improbable that such an ideal can ever be reached, but it is never likely to be even approached under the existing policy of recruiting. There is no doubt that a change is essential if the Territorial Army is to be fitted to carry out its role, besides which the continued enlistment of men of inferior physique and intelligence is sheer waste of money. Quality and not mere numbers must be the aim in future.

The same principle applies to the officers, and with even greater force as it is upon them that the future of the Territorial Army depends. Only those should be retained or commissioned who are prepared to take their self-imposed duties and responsibilities seriously and not merely as a means of obtaining a uniform, rank or some social advantage. Enthusiasm and knowledge are, however, by no means all that is required in a Territorial officer. The importance of personality is so great in peace and war that this must be the main criterion by which selection for first commissions and subsequent promotion is made, as those who do not possess the qualities which go to make a leader, or are unlikely to develop them, may become conscientious officials but not leaders of fighting troops. If a higher standard be demanded, it is probable that numbers would decrease, for a time at least, but even so, the absence of those whose lack of leisure, inclination, strength of character or energy make them unfitted for the position will not be a serious loss.

Human nature being what it is, the prestige of the Territorial Army is an important factor in its future, and everything possible should be done to maintain and raise it by Government propaganda and the co-operation and support of local authorities, backed by the assistance

and moral support of the Regular Army. It should not be forgotten, however, that it is ultimately upon the personnel of the Territorial Army itself that its prestige must depend.

EQUIPMENT

With the necessary advance of mechanization and the increased complication of war, the equipment of a large army presents greater difficulty than in the past. This is particularly the case in regard to transport vehicles. The wagon was standardised, comparatively cheap, while the necessary horses would be acquired from the civil population with little difficulty, provided an efficient organization to that end existed. But mechanical transport is expensive, quickly grows out of date and deteriorates in store. There are, of course, many items which can be purchased and safely kept in store provided funds are available, but stocks of ammunition, for instance, the turnover of which is more than is required for peace training, tend to become a dead loss.

In any case, provision for the immediate and complete equipment of the Regular divisions is essential, and Territorial divisions can, except perhaps the First Contingent, be catered for by plans designed to produce, immediately on an outbreak of war, all material which cannot be held in peace. Units, however, require for training in peace and after embodiment a small proportion of any new weapon, vehicle, etc., which is to form part of their war equipment. The two main factors to be considered are :—

(*a*) The Territorial Army will need some months for training after embodiment ;

(*b*) Time must elapse before industrial mobilization produces the requirements of the expanded army in equipment and munitions.

These factors require consideration now, that is to say, in peace. For, given a definite plan of expansion as outlined in the preceding section, it would be possible to forecast when an adequate supply of equipment, transport and munitions can be made available. From this the earliest date upon which Territorial formations will be equipped to join the field army can be determined and mobilization and transportation plans made accordingly. It is also quite clear that this timing would show the minimum period which will be available for training and would thus furnish a valuable guide for the preparation of plans for post-embodiment training.

There are naturally many considerations which influence the design of weapons, instruments and equipment for use by the army as a whole, not the least of which is that they must be efficient in any part of the

world. But from the point of view of expansion for a war of the first magnitude two factors become of vital importance, namely, ease of manufacture and simplicity in manipulation and maintenance. The first is obvious; the second is illustrated by the following example:—The Lewis gun is an accurate and efficient weapon in the hands of an expert, but men do not become expert in its use without considerable training and constant practice. It has a large number of small springs and intricate parts; there are at least fifteen stoppages which a man has to learn to recognize and remedy in action—mostly with the aid of spare parts which must be carried with the gun and replaced from the rear; and, an elaborate drill is necessary both for ground and air action. This weapon does not fulfil the requirement of simplicity either from the point of view of the user or of maintenance.

It is not putting this aspect too strongly by stating that in the design of any article the question: "Is it as simple as possible to teach and use" should be answerable in the affirmative before it is adopted.

Mechanization

Mechanization of the fighting units of the Territorial Army has already commenced and must continue owing to the shortage of light draught horses. There is no doubt that the training of the Territorial artillery at annual camp, for instance, is facilitated by mechanization, as the difficulty of competing with untrained men and horses at one and the same time is eliminated. The same applies to all arms on embodiment and with even greater force. In the case of infantry, however, mechanization cannot be completed until the problem of producing a mechanical substitute for the limbered wagon has been solved. Until this is done, the limber must be retained and efforts made to procure horses and mules for training and mobilization.

Anti-Gas Appliances

There is one serious defect in the peace equipment of the Territorial Army, that is the lack of respirators.

In view of the increased radius of aircraft and the possibility of their employment as gas carriers, troops concentrated in this country may, in certain circumstances, be liable to gas attack from the outbreak of war. For this reason it is essential that the necessary appliances be held ready for issue on embodiment and that sufficient respirators for training instructors be issued in peace. The instruction of the rank and file should start on the day of embodiment.

TRAINING

The difficulty of training under existing conditions has already been mentioned, and a little consideration shows it is not likely to be easier

on embodiment. The problem will be acute in the early stages as the following will all have to be dealt with at one and the same time :—

(*a*) Individual training of serving men ;
(*b*) Individual training of officers and N.C.O's ;
(*c*) The training of a large number of recruits ;
(*d*) The provision of cadres for draft finding units.

It is at once apparent that the question of instructors is crucial. The task is beyond the powers of the permanent staff of units and it is certain that the Regular Army will be unable to supply even one or two instructors per company or equivalent unit, and, therefore, the units themselves must supply the bulk if not all the instructors required for their own training as well as a cadre for training reinforcements. Every unit will be faced with the problem of increasing its establishment of N.C.Os. on embodiment.

The necessity for the Territorial Contingents joining the field army as soon as possible must be borne in mind, but, on the other hand, it is waste to put half-trained, semi-disciplined formations into the field except in dire emergency.

The problem therefore resolves itself into how to give the Territorial Army adequate training in the shortest time. The length of this period will depend largely upon how units are prepared in peace, and it is this aspect which will be considered in the succeeding paragraphs.

Pre-embodiment Policy

The policy in peace should be to produce first, officers and N.C.Os. who will be capable of carrying out the individual and elementary collective training of their men on embodiment ; and, secondly, a proportion of specialists. That is to say the training of units as units must be subordinated to the provision of instructors and specialists, any collective training carried out being simply to exercise officers and N.C.Os. in leadership. The rank and file must be regarded largely as a means by which officers learn to train and handle men and as a field from which to select future leaders and specialists. But even if a higher physical and mental standard is insisted upon in future, there will always be numbers of men who will never make specialists or N.C.Os. ; these will always be useful as a small pool of duty-men or as batmen, clerks, storemen, etc., on embodiment. The ideal then is for each unit to produce on embodiment its own trainers, specialists, and "employed men," plus a small cadre for training reinforcements. The specialists and "employed men" will, of course, require further training but nevertheless will help to provide a framework for receiving, administering and training recruits.

The first step is to enforce the policy—already laid down in Training and Manœuvre Regulations—that Territorial officers and N.C.Os. must themselves train their men; the permanent staff being employed solely as trainers of instructors and to some extent of specialists. Unless this be done the younger officers and post-war N.C.Os. cannot be expected to acquire the necessary confidence and habit of command. There is no doubt that on the first application of this policy the training of the rank and file will suffer, but this is not of real importance since the object is not to train units as units but to produce leaders.

The second step is to define a standard which can be reached in peace, particularly by all the N.C.O's, specialists and men of technical branches of the Service. If this be determined it is then possible to plan the measures to be adopted on an outbreak of war to provide the necessary courses at Army schools and other training facilities.

In the circumstances there can be no hard and fast division of the year into individual and collective training periods, and it is proposed to consider how this policy should be implemented (*a*) when the unit is dispersed; and (*b*) when it is concentrated for annual training. The former will be discussed under various headings; the latter is more easily dealt with as a whole.

Officers.

Apart from character and general ability, the first requisite in those who aspire to lead men is knowledge; the second is practice. Practice can be given in the drill hall, on the range and in camp. Knowledge can be acquired in various ways, namely by:—

(*a*) Attachment to a Regular unit, depot or school of instruction;
(*b*) Attendance at lectures and exercises held under unit or formation arrangements;
(*c*) Individual study;
(*d*) Correspondence courses;
(*e*) Tactical demonstrations.

As the first two of the above are limited by finance and time, both of which are more or less immutable in peace, it seems that it is the last three which should be further exploited. Of these, (*c*) and (*d*) should only be affected by the time factor, and that in a less exaggerated form as the work can be done when it suits the individual officer. But once the necessary enthusiasm has been engendered, study requires to be guided on to the right lines or it will probably not be of any practical value. Both these objections might be met by combining a course of reading with correspondence questions and answers.

As regards tactical demonstrations. This is a method of imparting knowledge in a form more easily grasped than in a lecture, and is one that can be carried out either in the open or indoors with the aid of large maps and lantern slides. These demonstrations are particularly suitable for showing how to set about the solution of various tactical problems, the procedure which should be adopted in the preparation of a plan for a unit or formation, the issue of orders and the action of subordinates or commanders of supporting arms. They are more realistic if the instructors act the parts of the various commanders represented. The best value is only obtained from this form of training if the demonstration is suitable to the audience, carefully prepared, well rehearsed, concise and designed to emphasize a few selected lessons or a particular tactical phase.

It is clear that Territorial officers must be willing to devote much more time than is required by their nominal obligations, but in work that is half a pastime or a hobby they should find relief from the routine or monotony of their civil avocations. It is not suggested that the Territorial subaltern should read the tomes of Clausewitz, but that young officers ought in the first instance to study the manuals applicable to their own arm of the service with a view to gaining a grasp of the principles and methods laid down, and then be directed to works which show the application of principles to concrete cases and illustrate the realities of war. This course should be the foundation of theoretical knowledge, practice being obtained at tactical exercises without troops and at annual camp.

In view of the importance of the Territorial officer gaining a knowledge of administration generally and of the care of troops, it is considered that a written paper dealing with these subjects should be introduced in the examination for both Lieutenant to Captain and Captain to Major. Officers should also be encouraged to take the Regular officer's examinations for promotion, it being announced as a definite policy that such officers will receive first consideration for selection to fill those appointments on the staff which are to be filled from the Territorial Army on mobilization.

Training of the N.C.Os.

The standard required is ability to instruct recruits or trained men in their individual duties and to lead a sub-unit in the field.

Much that has been said above in regard to officers applies to N.C.Os., though perhaps the difficulty as to the number of times they can or will attend is likely to be more acute. There is no doubt that all N.C.Os. ought to put in more than the very meagre number of obligatory drills

and that steps should be taken to encourage them to do so. The most promising method seems to be to revise the conditions under which the bounty is paid. This question is considered in a later paragraph.

The instruction of N.C.Os. in drill and weapon or appropriate training should be carried out by the permanent staff, tactical training being retained as the responsibility of the company officers. For this, the sand table provides a most convenient and inexpensive method of individual training. Instruction in conducting such exercises should, of course, form part of the training given to Territorial officers by Regular adjutants.

In view of the increased number of N.C.Os. required on embodiment, the selection and training of potential N.C.Os. is of great importance and the fullest use of the establishment of lance ranks should be made to stimulate competition for promotion even to the lowest grades. With this object in view it is considered that unpaid lance-corporals should be eligible to draw the special N.C.Os.' bounty referred to in a later paragraph.

The conditions in Territorial units vary so much that it is undesirable to lay down any hard and fast rules, but generally speaking it seems that in the first part of the winter there should be no " drills " for the men, this period being used for the training of N.C.Os. and aspirant N.C.Os. Then during the remainder of the winter and the spring, the N.C.Os. should be utilized to train recruits and the men of their own sub-units under the supervision of their company officers and with the guidance only of the permanent staff.

The Rank and File.

It may appear at first sight that under the system advocated, the training of the private soldier will be of little importance. This is not so, as it is from these men that N.C.Os. and specialists will be selected and the " employed men " drawn on embodiment, but the essence of the system is that the training of the N.C.O. is more important than the training of the man.

In the training of the rank and file, the first consideration is to give all men as good a grounding in the work of their arm or branch of the Service as time and circumstances permit. Secondly, no man should be allowed to become a specialist or " employed man " until he has completed at least one year's training and attained the standard laid down to qualify for the recruit's bounty.

Annual Training in Camp.

It is not proposed to discuss the arguments of the " spade-and-bucket school " versus the " serious-soldiering school." There is much

to be said on both sides, but in these times of financial stringency the Army Estimates cannot be expected to be the means of providing simply a pleasant holiday with pocket money. The guiding principle is that up to a point annual camp should be strictly utilitarian, officers and men being trained for war for six hours daily and then, and only then, dismissed to take advantage of such amenities as the neighbourhood of camp provides. The period in camp may be the only holiday in the year the officer or man can secure, but the value of a holiday in the true sense lies in complete change of scene and occupation. A reasonable conclusion is that seaside camps should be used, provided there is sufficient and suitable ground in the vicinity for training. If the right type of man is enlisted, the anxiety of commanding officers as to the site of annual camp will disappear.

There is sometimes a tendency to try to make camp popular by the provision of spectacles given by tanks and aircraft, or even by "joy-rides" in the former vehicles. Also, there is a legacy of the past which tends to become a chronic nuisance, namely the enormous number of competitions which units endeavour to work off during this period to the detriment of training. More value would be obtained if the trophies competed for were used to encourage cross-country running, boxing, etc., in the winter months.

Annual camp is the period when officers and N.C.Os. should be trained in handling their units and in practical administration; it is, too, the only real opportunity of giving continuous training to specialists. In the past there has often been a tendency to attempt too much and to undertake collective training on a scale for which neither officers nor men are fitted and from which they learn little or nothing. There is no doubt that anything higher than company training, or its equivalent, should be the exception, the first consideration being to exercise the junior leaders in the command of their sub-units.

The practice of attaching Regular personnel to units during annual camp, which has been a feature of recent years, is extremely valuable, but only if it be rightly used. If the object of Territorial training in peace, as set forth above, is borne in mind, it is clear that the greatest value will only be obtained if this personnel is employed as follows:—

Officers should act as advisers, critics and umpires and should on no account take command and should rarely even direct exercises;

N.C.Os. ought normally to be used to assist or supervise the training given by Territorial N.C.Os., though in some cases they may be used to train specialists;

Demonstration units should give simple, well-prepared demonstrations of drill or tactical methods, and act as a pattern of turnout and interior economy.

It must be emphasized, however, that the use of demonstrations can easily be overdone or become a means of wasting time, especially when too long and elaborate, or given to an ill-assorted audience on a hot afternoon.

Consideration of the site and activities during annual training opens up the question as to whether camps should not be partially or wholly abandoned as an annual event; the money saved being devoted to the attachment either of individuals or of complete units to Regular units in barracks. Both have advantages, particularly if the object be merely to train individuals or cadres. As we cannot entirely ignore the "unit," the first method should be adopted only occasionally, in lieu of a course of instruction, or for short periods such as Easter, because if the whole of the personnel were dealt with in this way the *esprit* of the unit would be destroyed. The second is not open to such objections but there is the danger of the Regular unit nursing its visitors very much to the detriment of their learning to stand on their own—particularly administratively. It is, however, one which might well be adopted once in say four years, especially when it is desirable to make use of training facilities or equipment belonging to the Regular Army.

The Bounty.

It is not proposed to consider the arguments for or against the "bounty"; on the whole its total abolition is now probably undesirable, but it is essential that the greatest possible value should be obtained from the money spent. It is considered that this will be achieved by using the funds available to encourage men to try to become N.C.Os. or specialists and for these to make themselves as efficient as possible.

The bounty, or proficiency grant, is, under existing regulations,[1] composed of two parts:—

(*a*) For weapon-training qualification, or its equivalent in arms of the Service where there is no weapon-training qualification;

(*b*) For attendance at a specified number of drills and at annual camp.

The weapon-training portion of the grant (i) should be retained under practically the same conditions for all N.C.Os. and privates other than specialists. The payment of the second part under the present conditions should cease, the money saved being devoted to a scale of rewards

[1] See Territorial Army Regulations, para. 666, and Appendices X and XI.

to encourage N.C.Os.—including a definite establishment of unpaid lance-corporals—and specialists to complete more than the obligatory number of drills, and in the case of the latter to reach a specified standard of efficiency.

The first condition for the payment of these rewards would, of course, be completion of obligatory drills and annual camp for not less than eight days, though it may be desirable to accept attendance at courses in lieu of the latter.

In the case of N.C.Os. the scale should be arranged so that the first ten drills over and above the obligatory number be paid at the rate of one shilling per drill, further drills being rewarded at the rate of one shilling and sixpence each, the total payable being restricted to £2, or thirty voluntary drills.

The specialists might be rewarded as follows :—

(*a*) For attaining a specified standard of efficiency—ten shillings ;

(*b*) For each drill above the obligatory number—sixpence for the first twenty and one shilling for additional drills up to a total of thirty.

In this connection it will be necessary to define carefully what is intended by the term " specialist " in each arm of the Service, bearing in mind that the object is to produce a framework for use on embodiment.

The maximum amount it would be possible for each class to earn under this system is shown in Appendix D.

General Remarks on Training.

It must be the aim to make training as simple as possible. The effect of the organization of infantry on this aspect has already been mentioned, as has the question of simplicity in equipment, but measures such as these are not sufficient if those responsible do not insist on simplicity in methods and the rejection of non-essentials. For instance, it is unnecessary for a rangetaker to have a knowledge of the theory of optics or of the constructional details of his instrument—which incidentally he is not allowed to take to pieces. What he really requires to know is how to take accurate ranges under service conditions and we require instructors to be able to teach him to do this. There are enthusiasts in every branch who think otherwise, and consequently are a menace to simplicity.

Training has necessarily been discussed in very general terms owing to the diverse requirements of the different arms and the varying conditions under which units are raised. There are, however, three points upon which, in conclusion, it is desired to lay stress. The first is that

all ranks should understand the object for which the Territorial Army exists and that all their training is to fit them to play their part as soon as possible after the outbreak of war, while the officers, in addition, should be made to realize their responsibilities as trainers and leaders in war. The second point is the importance of drill and smartness. In spite of what many superficial critics maintain, good steady drill is one of the first essentials in training, and is in fact the foundation of discipline and *esprit de corps*. Bad drill is a waste of time and patience, but properly executed drill will be found to be one of the best aids to rapid and successful training on embodiment. For these reasons, officers and N.C.Os. must have a thorough knowledge of the drill of their arm, be smart themselves and able to give instruction or conduct drill in the proper manner. Finally, a start ought to be made as early as possible with the anti-gas training of officers and N.C.Os., and, as equipment becomes available, in teaching the rank and file at least how to adjust a respirator.

CONCLUSION

An attempt has been made to show what are considered to be the weaknesses of the Territorial Army as it exists to-day, and to suggest changes which will place it in a better position to carry out its role in the event of war. Any changes, however, must be within the range of practical policy, thus due regard has had to be paid to the financial situation and the fact that we are tied to the Cardwell system, as well as to the principle of a voluntary second line army whose obligations cannot be greatly increased.

The main proposals may now be summarized as follows:—

(i) To provide the necessary divisional, corps and army troops so that formations complete with ancillary troops will be available for the expansion of the Expeditionary Force. This will involve a reduction in the number of divisions maintained and the conversion or abolition of a number of units;

(ii) The remaining ten or eleven divisions and ancillary troops which will be available to proceed abroad to be organized into two Contingents, the first being given every possible facility in peace to ensure it being fit for service in the shortest possible time;

(iii) The reorganization of Territorial infantry brigades into three rifle battalions and one close support battalion. Each infantry brigade of the First Contingent to include one Regular battalion;

(iv) The primary objects of peace training to be, first, the preparation of officers and N.C.Os. to act as instructors and leaders

on embodiment; and, secondly, the selection and preliminary training of specialists;

(v) Careful selection of officers and a higher physical and mental standard to be insisted upon in respect of the other ranks;

(vi) The First Contingent to be as fully equipped in peace as finance will permit. The remainder to be provided with sufficient of the latest approved patterns of arms, vehicles, etc., for training purposes; plans being made for production after an outbreak of war to keep pace with the expansion of the field army.

It may be objected that some of these changes will be unpopular and cause political difficulties. This opposition must be faced and liquidated. Changes are essential, for if the Territorial Army is to fulfil the role for which it exists it must be organized in accordance with modern requirements and be able to produce its own officers and N.C.Os. capable of training and leading their units with the minimum of assistance from the Regular Army. The alternative involves increased delay in developing our resources after the outbreak of war and all that that implies.

Such criticisms of the Territorial Army as have been made in this paper are not directed at the personnel as a whole, but rather to conditions and policy over which they have little or no control. The greatest credit is due to those officers and other ranks whose efforts and self-sacrifice have been so valuable in the difficult conditions existing since the close of the Great War. The Territorial Army is an invaluable link between the professional soldier and the civilian at a time when the country is passing through a phase comparable to that following the Napoleonic wars. The general public takes little or no practical interest in the Army, or in fact in National Defence, a traditional attitude, perhaps, but extremely dangerous to-day owing to the world situation and the subversive propaganda of various kinds of pacifists, honest and otherwise. In these circumstances it is an act of self-preservation to enlighten the public as to the role and importance of the Territorial Army; and, also to take steps to maintain the prestige with which it emerged from the Great War. At the same time it is essential that its weaknesses be realized and action taken to bring about such improvements as are possible under the existing system, for none other is within the range of practical politics.

A proper understanding of the role and importance of the Territorial Army will do much to remove opposition to measures clearly necessary to increase its efficiency but which at the outset appear to bear somewhat heavily upon local traditions or upon units and individuals.

APPENDIX A.

THE SUGGESTED EXPANSION OF THE EXPEDITIONARY FORCE FOR A WAR OF THE FIRST MAGNITUDE

It is assumed that it has been decided to form a sixth Regular division, and that out of twelve Territorial divisions, ten can be made available to reinforce the field army.

THE ORIGINAL EXPEDITIONARY FORCE—

Army Troops[1]
1st Cavalry Division
1st Corps (1st and 2nd Divisions)
IInd Corps (3rd and 4th Divisions)
5th Division (possibly attached to one of the above Corps)
6th Division (in process of formation and mobilization).

THE FIRST TERRITORIAL CONTINGENT—

Two corps headquarters
Two divisions—"A" and "B"
Six army field brigades, R.A.
Three medium brigades, R.A.
Two air defence brigades
Ancillary troops for the above, including 2nd and 3rd line transport
Proportion of L. of C. troops.

POSSIBLE ORGANIZATION OF THE FIELD ARMY AFTER THE CONCENTRATION OF THE FIRST TERRITORIAL CONTINGENT—

G.H.Q. Troops[1]
1st Cavalry Division
1st Corps (1st and 2nd Divisions)
IInd Corps (3rd and 4th Divisions)
IIIrd Corps (5th and "A" Divisions)
IVth Corps (6th and "B" Divisions).

THE SECOND TERRITORIAL CONTINGENT—

Three corps headquarters
One Yeomanry brigade[2]
Eight divisions—"C", "D", "E", "F", "G", "H", "K" and "L"
Eight tank battalions
Eight army field brigades, R.A.
Eight medium brigades, R.A.
Three air defence brigades
Proportion of heavy artillery
Ancillary troops for the above and proportion of L. of C. troops.

POSSIBLE ORGANIZATION OF THE FIELD ARMY AFTER THE CONCENTRATION OF THE SECOND TERRITORIAL CONTINGENT—

G.H.Q. Troops
1st Cavalry Division
One Yeomanry Brigade.[2]

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[1] This includes Regular Tank Corps units the expansion of which is not considered in this paper.

[2] Unless converted to an armoured formation, in which case the number of tank units with the Second Contingent would be increased to at least eleven.

First Army
Army Troops
Ist Corps (1st, "D" and "K" Divisions)
IInd Corps (3rd and "F" Divisions)
IIIrd Corps (5th and "G" Divisions)
Vth Corps (2nd and "C" Divisions).
Second Army
Army Troops
IVth Corps (6th, "B" and "L" Divisions)
VIth Corps (4th and "E" Divisions)
VIIth Corps ("A" and "H" Divisions).

A POSSIBLE THIRD TERRITORIAL CONTINGENT.—This might consist of the division or divisions originally employed on garrison duty. This must, of course, depend on the general situation in the Empire and on the possibility of providing fresh troops to relieve these formations.

There is also the possibility of forming second-line Territorial formations on cadres provided by the original units with some assistance from the Regular Army.

APPENDIX B.

UNITS REQUIRED BY THE TERRITORIAL ARMY FOR REINFORCING THE FIELD ARMY OUTLINED IN APPENDIX A.

(i) The most important units required to complete ten divisions for the Field Army and to provide the necessary corps and army troops are :—
Nine light brigades, R.A.
Five air defence brigades
Five corps signals
Five corps R.A.S.C.
Twenty field ambulances (divisional)
Five field ambulances (non-divisional)
Five corps workshops, R.A.O.C.

(ii) On the amalgamation of four infantry divisions into two, as proposed on page 221, the undermentioned will be surplus to requirements. It is proposed that they should be dealt with as follows :

Two divisional headquarters ..	Saving
Six infantry brigade headquarters .	Saving
Twenty-four infantry battalions ..	Saving or conversion
Six field brigades, R.A.	Convert to two light brigades and four anti-aircraft brigades
Two divisional R.E.	Convert to two anti-aircraft battalions
Two divisional signals	Convert to two corps signals
Two divisional R.A.S.C.	Convert to two corps R.A.S.C.
Two field ambulances	Re-allot as non-divisional units
Two divisional ordnance companies	Convert to two corps workshops.

It has been seen that the following cavalry divisional troops are also surplus to requirements :

One cavalry brigade headquarters.	Saving
One brigade, R.H.A.	Convert to light brigade
One field squadron R.E.	Saving or convert
One divisional signals	Convert to corps signals
One divisional R.A.S.C.	Convert to corps R.A.S.C.
One field ambulance	Re-allot as non-divisional unit
One ordnance company	Convert to corps workshop.

(iii) By the above conversions, the requirements in the larger units are reduced to :

Six light brigades
Three air defence brigades
Two corps signals
Two corps R.A.S.C.
Twenty-two field ambulances
Two corps workshops, R.A.O.C.

All the above, with the exception of those field ambulances not required for the First Contingent should be formed in peace, as should the other corps and army troops of the First Contingent. The funds for maintaining these units would be obtained from the saving on the twenty-four disbanded battalions, etc., shown in para. (ii) above.

(iv) There remain the two divisions which it has been assumed are earmarked for garrison duty, etc. No provision has been made in the above for the light brigades and field ambulances required by these divisions. It is suggested that plans should be made for the formation of these units on embodiment, in view of the possibility of these formations eventually forming part of a Third Territorial Contingent.

APPENDIX C.

PROPOSED ESTABLISHMENT OF A TERRITORIAL INFANTRY BRIGADE AND COMPARISON BETWEEN EXISTING AND PROPOSED DIVISION.

BRIGADE HEADQUARTERS—

As laid down in existing War Establishments, but less brigade machine-gun officer.

THREE INFANTRY BATTALIONS—

Each—: Headquarters .. As laid down in existing War Establishments.
Headquarter wing
Four rifle companies each of four platoons.

ONE CLOSE SUPPORT BATTALION—

Consisting of—:
Headquarters
Headquarter wing No. 1 Group, as infantry battalion, less signallers
No. 2 Group (anti-tank) six anti-tank weapons
No. 3 Group, as infantry battalion, but with modified transport.
Four companies, each of three machine-gun platoons and one mortar platoon, i.e., twelve machine guns and four mortars per company.

COMPARISON BETWEEN PROPOSED AND EXISTING TERRITORIAL DIVISION—

	Inf. Bns.	C.S. Bns.	M.Gs.	Mortars	L.As.	A.A. L.As.	Anti-Tank
Existing ..	12	—	144	48	288	24	48
Proposed ..	9	3	144	48	288	24	54

Guns to Battalions.

Existing division . .. 72 field guns to 12 battalions.
Proposed division . .. 72 field guns and 12 light howitzers to 9 battalions.

APPENDIX D.

MAXIMUM PROFICIENCY GRANTS

(Advocated on page 232.)

	£	s.	d.
NON-COMMISSIONED OFFICERS—			
Weapon training or equivalent		10	0
Drills over and above the obligatory number—:			
First 10 at 1/- each		10	0
Subsequent drills up to a total of 20 at 1/6 each	1	10	0
Attending camp for fifteen days		10	0
Maximum	£3	0	0
SPECIALISTS—			
For attaining specified standard of efficiency		10	0
Drills over and above the obligatory number—:			
First 20 at 6d. each		10	0
Subsequent drills up to a total of 10 at 1/- each		10	0
Attending camp for fifteen days		5	0
Maximum	£1	15	0
PRIVATES AND RECRUITS—			
Weapon training or equivalent		10	0
Attending camp for fifteen days		5	0
Maximum	£0	15	0

REFEREES' REMARKS ON THE 1933 ESSAYS

[The following remarks by the Referees on the five best Essays submitted in 1933 are published not only for the information of the writers, but because they add much of value to the subject. They will also be of interest to the authors of the other essays, and of assistance to future competitors—EDITOR.]

1. The essay submitted under the motto "Lest we forget," is a thoughtful and valuable piece of work . . . . The presentation of the problem is sound but to enable a practical solution to be found, an even wider review is necessary. Such questions as the responsibility already undertaken for the Coast and Air Defence of Great Britain, the position of County Associations and their relations with the War Office and formation Headquarters, and the complete lack of any force to replace the Special Reserve which performed an essential service during the Great War, are such as must certainly influence strongly the final solution adopted.

The suggested organization of the Expeditionary Force is interesting and practical. But the difficulty of providing a small contingent as a reinforcement to the Territorial Army in a major expedition is not fully faced.

The writer has added to the difficulty of his task by limiting his proposals to such as can be carried out within the present cost of the Territorial Army, and he has assumed that six months will be available for training before formations are sent to the theatre of war. Neither of these limitations are stated or implied in the subject as set. The time available for training will depend on the action of the enemy, therefore it is probable that some formations will have to be ready in a shorter time. If such be the case the problem can be solved only at increased cost. The limit of what can be accomplished by voluntary effort under present financial conditions has probably been reached.

2. The essay under the motto "Therefore let any Prince or State, etc.," is written on the lines of an appreciation [in four Sections]. The first three Sections show a masterly grip of the major issues of the problem . . . . moreover Sections II and III show an exceptional understanding of the various aspects of the military problem of our country, which are often overlooked by would-be reformers—aspects which impinge on constitutional questions, on the characteristics of our race and its ingrained prejudices, and on the history and character of the volunteer movement in our country—all of very great importance.

Section IV puts forward proposals for the organization, which are based on the sound principle that, whereas the organization of the Regular Army is determined not solely on the requirements for war but also for those of garrison duties in peace and the Cardwell System, that of the Territorial Army need not be, and should not be, influenced by such considerations but should be drawn up solely to fulfil its purpose in war.

In the details of the proposals there are points open to criticism, and others which would be difficult to implement. Up to this point the essay is worthy of high praise, but the problem of training is completely omitted, and this is just as important and equally difficult as that of organization.

3. The essay given the motto of "Principia non homines" is a valuable piece of work, and Part II, which deals with proposals for changes in organization and equipment and suggestions for improving the training of the Territorial Army, reaches an exceptionally high standard in originality and boldness of thought.

In comparison to Part II, however, Part I is weak. Such questions as the responsibility for home defence; the supply of reinforcements to the Expeditionary Force; the influence of the heavy reduction in H.M. Land Forces; the financial factor—now, in the past, and in the future; the system of administration of the Territorial Army through County Associations; the time likely to be available for training after mobilization is ordered, are all deserving of close consideration and likely to have influence on the final solution put forward. The tendency is to be hypercritical of the present situation, without showing an understanding of how it has arisen.

The organization of a Regular infantry battalion is influenced to a large extent by its garrison duties in peace, and there is no reason why confusion should result if the infantry of the 1st Line divisions (T.A.) suggested by the writer were organized solely for war, exactly as is proposed for the other divisions. Automatic rifles have been rejected by most armies in favour of light automatics or machine guns owing to the difficulty of making provision for ammunition supply.

4. There is much valuable work in the essay "The old order changeth." It fails to earn a higher place in the judgment of the referees owing to the omission to deal adequately with many important considerations, e.g., the time problem; the possible necessity of producing a comparatively small addition to the Expeditionary Force; the possibility of simplifying training by changes in organization and equipment; the difficulty of providing cadres for expansion.

5. The essay entitled "If the bulwark is defective, etc.," though is does not reach the standard required for the award of the Gold Medal, is nevertheless one of considerable merit and deserving of high praise. In the first six sections there is a sound and interesting approach to the problem. But in discussing organization and equipment there is a failure to deal with questions in the same big-minded way: some of the proposals are too detailed and so upset the balance.

The paragraphs dealing with training are interesting and instructive, but this difficult part of the problem is not fully treated, e.g., there is no consideration given to the provision of cadres for expansion, etc.

RECIPIENTS OF THE ROYAL UNITED SERVICE INSTITUTION GOLD MEDAL

(With rank of Officers at the date of the Essay).

1874 Captain H. W. L. Hime, R.A.
1875 Commander G. H. U. Noel, R.N.
1876 Lieutenant J. F. G. Ross of Bladensburg, Coldstream Guards.
1877 Captain P. H. Colomb, R.N.
1878 Major T. Fraser, R.E.
Captain E. Clayton, R.A.
1879 Captain The Hon. E. R. Fremantle, C.B., C.M.G., A.D.C., R.N.
1880 Captain J. K. Trotter, R.A.
1881 Captain L. Brine, R.N.
1882 No Medal awarded.
1883 Captain C. Johnstone, R.N.
1884 Captain G. T. Browne, Northamptonshire Regiment.
1885 Lieutenant F. C. D. Sturdee, R.N.
1886 Captain C. E. Callwell, R.A.
1887 No Medal awarded.
1888 Captain J. F. Daniell, R.M.L.I.
1889 Captain H. F. Cleveland, R.N.
1890 Captain G. E. Benson, R.A.
1891 Captain R. W. Craigie, R.N.
1892 Lieut.-Colonel J. Farquharson, C.B., R.E.
1893 Commander F. C. D. Sturdee, R.N.
1894 Major F. B. Elmslie, R.A.
1895 Commander J. Honner, R.N.
1896 Captain G. F. Ellison, Queen's Royal West Surrey Regiment.
1897 Commander G. A. Ballard, R.N.
1898 Captain W. B. Brown, R.E.
1899 Commander G. A. Ballard, R.N.
1900 No Medal awarded.
1901 Lieutenant L. H. Hordern, R.N.
1902 Major A. H. Terry, A.S.C.
1903 Lieutenant A. C. Dewar, R.N.
1904 Lieut.-Colonel C. E. D. Telfer-Smollett, 3rd Bn. South Staffordshire Regiment.
1905 Major W. C. Bridge, South Staffordshire Regiment, *p.s.c.*
1906 Lieutenant B. E. Domvile, R.N.
1907 Lieut.-Colonel A. F. Mockler-Ferryman, Reserve of Officers.
1908 Major A. B. N. Churchill, R.G.A.
1909 No Medal awarded.
1910 Captain P. W. Game, R.H.A.
1911 Captain H. T. Russell, late R.G.A.
1912 Commander K. G. B. Dewar, R.N.
1913 Major A. Lawson, 2nd Drags.
1914–15–16–17 No Medals awarded.
1918 Lieutenant W. S. R. King-Hall, R.N.
1919 Colonel J. F. C. Fuller, D.S.O., Oxford & Bucks L.I.
1920 No Medal awarded.
1921 Flight-Lieutenant C. J. Mackay, M.C., D.F.C., R.A.F.
1922 Major R. Chenevix - Trench, O.B.E., M.C., Royal Corps of Signals.
1923 Captain A. H. Norman, C.M.G., R.N.
1924 Major L. I. Cowper, O.B.E., King's Own Royal Regiment.
1925 Lieut.-Colonel J. C. Dundas, D.S.O., Royal Tank Corps.
1926 No Medal awarded.
1927 Colonel H. Rowan-Robinson, C.M.G., D.S.O., R.A.
1928 No Medal awarded.
1929 Wing-Commander C. J. Mackay, M.C., D.F.C., R.A.F.
1930 Captain D. W. Boileau, R.A.S.C.
1931 Sub-Lieutenant N. McI. Kemp, R.N.
1932 Wing-Commander J. O. Andrews, D.S.O., M.C., R.A.F.
1933 Brevet Major F. A. S. Clarke, D.S.O., *p.s.c.*

COAL VERSUS OIL FOR THE NAVY

By Engineer Vice-Admiral Sir Reginald W. Skelton, K.C.B., C.B.E., D.S.O.

On Wednesday, 14th March, 1934.

Admiral of the Fleet Sir Roger Keyes, Bt., G.C.B., K.C.V.O., C.M.G., D.S.O., M.P., in the Chair.

The Chairman said there was no need to introduce the Lecturer because everybody knew him: he was the late Engineer-in-Chief of the Navy.

Personally he was glad to take the Chair that afternoon because when he joined the submarine service in 1910 Sir Reginald was the keeper of his conscience in all matters connected with engineering. The submarine service owed an enormous debt to Sir Reginald for the development of the internal combustion engine in the submarine, and many other technical matters connected with the submarine service.

LECTURE.

COAL *versus* oil fuel for the Navy has, as a matter of fact, ceased to exist for some years as a controversial question for the responsible authorities—at any rate since the Great War. It can also be said that all thinking naval Executive and Engineer Officers, and Naval Architects are agreed that the fuel of to-day must be liquid; but since this country does not, unfortunately, possess within these islands, any known appreciable source of natural oil, but does possess large quantities of the best steam-raising coal, it is quite natural that those people who earn their livelihood from coal should be bitterly disappointed that their fuel cannot now be made use of in the British Navy, and that misled by the less responsible publicists and supported by even less reputable facts and data, they should from time to time question naval policy and plead for sympathy.

You will gather from these opening remarks, that I am myself in no doubt whatever as to which is the proper fuel to be used to-day, but this condition has not always existed, and I will, therefore, outline how this has come about, and analyse, so far as I can, the relative claims of oil fuel and coal.

I am careful to say "so far as I can," because the subject has four principal headings under which it must be considered, viz.: technical, manning, operational, and supply, and while you will no doubt admit that so far as the technical question is concerned, my opinion should be as good as any other, the other three headings may introduce matters

on which a Naval Engineer is admittedly not necessarily the best and only adviser.

HISTORICAL.

A number of small auxiliary vessels in the Admiralty service had used steam engines from 1816, but it was not until March 1828, that the name of a steam vessel appeared in the Navy List. This was the "Lightning," of 100 nominal h.p., which was built at Deptford and completed in December, 1823.

At first, only North Country coal was used as fuel, and there was much trouble from smoke, affecting both the cleanliness of the ship and the visibility. In the Baltic campaign, Admiral Napier's flagship, the "Duke of Wellington," used Welsh coal, while the remainder of the ships used North Country coal, "the smoke from which," the Admiral reported, "was so intolerable that, in coming in, the channels could scarcely be distinguished." He also stated that "in going into action with a fleet, or even with batteries, such a smoke would be injurious to the correct performance of evolutions, and that therefore it was a matter of great importance that coals making the least smoke should in future be supplied."

Investigations into the relative values of the various kinds of coal were made, and trials carried out for the Admiralty by Sir Henry de la Beche, the geologist, and Dr. Lyon Playfair, afterwards Lord Playfair, the chemist. Their "Report on the coals suited to the Steam Navy" was published in 1848–49. From this time until it was superseded by oil fuel, Welsh coal was the standard fuel used in the Navy. In 1839, a patent fuel prepared from screen and refuse coal mixed with coal tar, Stockholm tar and Trinidad pitch was used in H.M.S. "Firebrand" during a trip made by some of the Lords of the Admiralty in that ship. It was reported that this fuel showed advantages over the best coal in all respects.

EXPERIMENTS.

The earliest successful experiments to burn oil fuel in connection with marine boilers of which we have any record were those carried out by Captain Selwyn, R.N. at Woolwich Dockyard in 1867–70, using a steam-spraying system. The fuel used was creosote—at that time a waste product from the distillation of tar for chemical purposes—and it was steam sprayed with very simple appliances over the bricked-over grate of a coal-burning furnace. Very good rates of evaporation were obtained, sometimes nearly double that obtained in the same boiler with coal.

The advantages of oil fuel for naval purposes were, even at that date, clearly appreciated; but special emphasis was laid on the necessity

for a fuel heavier than water which would sink clear of the vessel in the event of the tanks being damaged in action, and it appears that the very limited supplies of fuels possessing this quality was the main reason why the matter was allowed to lapse. It is interesting to note that at the same time that Captain Selwyn was making these experiments, another inventor, T. R. Crampton, was carrying out investigations into the use of pulverized fuel, in the belief that his ideas were original, but only to find that his methods had been discussed some fifty years earlier.

Liquid fuel was used in the locomotive boilers of the Great Eastern Railway in 1886, but the earliest marine installation of which I am aware was that fitted in S.S. "Gretzia" by the Wallsend Slipway Company in 1881.

So far as the Navy is concerned, the question of the use of oil fuel remained more or less in abeyance until 1898, when experimental work was commenced with the types of sprayers then available, such as the Holden type of the Great Eastern Railway and the steam pulverizing Rusden & Eeles type, which was in use to a very limited extent in the Mercantile Marine. The results were unsatisfactory, and no substantial progress was made until 1901, when it was realized that the experiments must be transferred to the shore, and various boilers were fitted up at Devonport and Portsmouth for developing oil fuel apparatus and furnaces, both for use with oil alone and with coal. In 1902 an experimental plant was erected at the Gun Boat Yard, Haslar.

Ranging through methods of atomization by steam and air, the experiments with oil culminated in devices for pressure spraying, otherwise called mechanical atomization, and this has remained in essence the system used by the Navy to this day.[1]

Haslar Research Work.

It can be said that the many inventions, details, and improvements, which have been developed from time to time, and have led to the existing fleet appliances for buring oil fuel, have all been produced by Naval Engineer officers working at the Admiralty Fuel Experimental Station, Haslar, under the direct supervision of the department of the Engineer-in-Chief of the Fleet; the cost of the establishment has been comparatively small, no royalties have been or are being paid,[2] and our system of to-day is, so far as I know, more efficient than any other for the conditions it has to meet. It would indeed be difficult to find any research establishment which has paid, almost without its being noticed, such a handsome dividend.

[1] Obviously any form of spraying by steam involves a large consumption of fresh water, and would be most undesirable in a ship at sea.

[2] An award of £750 was granted to Mr. Melrose, Chief Inspector of Machinery, Royal Navy.

Early Trials at Sea.

The experimental designs at Haslar, when they reached a certain degree of efficiency, were tried under seagoing conditions in the destroyers "Surly" and "Spiteful."

By this time, in 1903 or thereabouts, the Admiralty was satisfied that supplies of suitable fuel in the desired quantities would be forthcoming, and the devices began to be applied to new construction.

Adoption of Oil Fuel.

From 1904, all the large vessels of new construction programmes were designed to carry and burn a certain amount of oil as well as their coal, and in 1905 coastal torpedo boats Nos. 1 to 32, known in the Navy as "oily wads," and the fast T.B.D's of the "Tribal" class were equipped to burn oil fuel exclusively.

The boilers in the large ships were designed to develop their full power on coal alone, and oil was adopted as a means of enhancing the endurance, both of the fuel and of personnel and, as practice showed, of answering those sudden calls for speed and retaining speeds—the calls to go "all out"—which come at critical times.

World's Output of Crude Oil.

I have already remarked that about the year 1903 the Admiralty was satisfied that the supplies of oil fuel forthcoming were sufficient to justify advancements in oil-fuel firing. As bearing on this question the amounts of crude mineral oil produced by the oil wells of the world over the period from 1857 to the present day, for the years enumerated, is shown in the following table:—

In the year	*World's output of Crude Oil in tons*
1857	300
1860	72,700
1870	828,400
1880	4,288,300
1890	10,947,800
1900	21,305,300
1910	46,823,300
1914	58,220,600
1918	71,918,600
1920	98,400,600
1930	201,434,000
1931	195,757,000
1932	186,509,000

Total World's Output to end of 1932: 3,245,038,000 tons.

This table of oil production shows that if oil promised advantages for naval purposes over coal—and it did—we should have been guilty of lunacy if we had remained blind to its future.

Now I have seen it argued that the present generation of naval officers is not responsible for the use of oil fuel: that is quite true, but the aim of that statement was to show that some distinguished naval officer, or politician—names have actually been mentioned—drawn into the spider's web of some oil magnate, had combined with Machiavellian cunning to force this unwanted foreign product on the British Navy. It is hardly worth while discussing such suggestions; the truth is, of course, that you cannot stop the march of progress, and the fact is that no single individual or even a small coterie of individuals has been responsible for the introduction of oil fuel for the Navy. Its technical development and use, has, under successive Engineers-in-Chief of the Fleet, and one might say the whole naval engineering personnel at sea, proceeded from day to day. The technique being assured, authority for its adoption and use has, in all the circumstances to be considered, been made, not by one man but successively by a host of men in the governing positions. One might with more truth say that that epoch-making invention, the marine steam turbine, was forced on the Navy by the late Sir Charles Parsons, but even that would not be true—though the credit in this particular case is very rightly his. It was adopted by the governing Board of the Navy, the Admiralty of that day, much to their credit for early perspicuity, acting on the advice of their technical advisers, and not one or two or even a dozen individuals stand alone to extol or blame in such matters. These developments are evolutionary; they can be delayed, they can be hastened; but, if good and right, their preponderating advantages must lead inevitably to their increasing use.

About 1908, destroyer programmes with oil fuel alone having progressed perhaps somewhat quickly, some doubt was felt about the certainty of supply, and it was decided that the twenty vessels of the "Beagle" class, then being designed, should use coal. The disadvantages of coal, already well known in the technical departments, soon became apparent, and in the very next programme coal was finally abandoned, and in the "Acorn" class, oil was restored and has continued to be used ever since. After oil had once been tried, coal lasted in destroyers for one programme only—one year's batch—and the following comparison shows the reason: the "Acorn" as compared with the "Beagle" had a superior armament; 20 per cent. less displacement; cost 16 per cent. less; and was 1½ knots faster; moreover she could hold her speed until fuel ran out. Since that date the develop-

ments in destroyers with oil fuel have far outstripped those mentioned in the comparison between the "Beagle" and the "Acorn."

It seems that from 1903 onwards the Admiralty were steadily pursuing a policy tending towards 100 per cent. use of oil fuel in the Navy; yet it is not until 1931 that we find a petition being engineered for a return to coal. Was King Coal asleep all those years? But, after all, it must not be supposed that the experiments and improvements in the burning of oil fuel made at Haslar and in the fleet were confined to oil alone. Mechanical stokers were tried, and all the advancements in the handling and burning of coal by the Mercantile Marine and in shore power stations have always been, and are being, watched to see if any of them could be applied with benefit in H.M. ships.

Such is a brief outline of the historical development of fuel since steam became the propulsive agent for naval ships. Now we will pass to a comparison of the technical, manning, and operational features.

TECHNICAL.

The calorific value of oil fuel is about 1.3 to 1.4 times that of coal. As measured in British thermal units, oil is about 19,000, while best Welsh steam coal is about 14,500. But, while oil is fairly uniform in quality whatever its geographical origin, it does not deteriorate with storage, and leaves no ash; coal—even Welsh—is not uniform, while the variations in the quality obtained from the various sources of origin all over the world are enormous. Coal does deteriorate slightly with storage, it becomes dusty with handling, and it contains an objectionable amount of ash, though these disadvantages can be mitigated by modern methods of washing and handling.

BULK.

The space required for stowing one ton of Welsh coal is 40 to 43 cubic feet, whereas one ton of oil fuel averages about 38 cubic feet; moreover oil bunkers can be safely filled to 95 per cent. full stowage, whereas in coal bunkers there is an appreciable loss from broken stowage —sufficient space having to be allowed under the beams at the crown of the bunkers to provide for ventilation and to permit egress of the coal trimmers.

PULVERIZED FUEL AND MIXTURES.

Pulverized fuel cannot be carried in bulk because it is dangerous; but even if it could, it would have to be kept "fluffed," i.e., prevented from packing, and in that condition requires much more space—55 to 60 cubic feet per ton. Alternatively, if coal is pulverized as it is

required for use, on the " hand-to-mouth " system, then much additional machinery, absorbing space and weight, must be installed to do the work.

Mixtures of pulverized fuel and oil, erroneously called " colloidal fuel," have been tried for many years, and while an increased weight per cubic foot of this fuel, as compared to oil alone, can be stowed, no mixtures so far tried have proved really stable or suitable for stowage in and use from warship tanks.

Stowage.

Within reason, oil can be stowed in any compartment, large or small, no matter what shape or where situated in the ship; contiguity to the boilers is not necessary, and the fullest use of all available space can be made without impairment of supply to each and all of the boilers.

Transport to Boilers.

In coal-burning ships the only readily accessible stowage is above the floor plates and abreast the boiler rooms; yet in ships requiring much endurance, a large proportion of the coal must be stowed in bunkers which are not easily accessible or which cannot be worked without increasing the labour necessary to keep up and maintain supply. In the War, for example, many ships carried large quantities of coal in reserve bunkers which it was found impossible to use, and for operational purposes it had no value whatever. Under no circumstances could this coal be transported to satisfy any other rate for steaming, but a low rate.

To supply coal from bunkers to boiler rooms, a number of W.T. doors must be fitted in the bulkheads, and the protective decks must be pierced for scuttles and armoured hatches: all making for weakness and expense in construction and vulnerability under working conditions at sea. With oil fuel these doors, scuttles, etc., are not required, therefore the W.T. subdivision is more efficient, protection is improved, and the strength of the structure increased. Moreover, the bulkheads, decks, etc., forming the boundaries of the fuel tanks remain fully efficient, being always under test; a condition which cannot be assured with the boundaries of coal bunkers. In the latest warships, in which the weight of fuel carried reaches 30 per cent. of the displacement, this advantage is most valuable.

General Effect on Design.

It is almost impossible to design a warship providing for anything approaching an equal supply of coal to each group of boilers, and still more difficult to ensure this state of affairs at the commencement of

an action. I may mention my own ship, H.M.S. "Agincourt," as a particularly glaring example, although in fairness it must be said that the ship was not Admiralty designed. She had three boiler rooms—A, B, C; A had 450 tons of coal abreast it; B had about 800 tons; and C, including reserve bunkers, about 2,000 tons.[1] If it had not been possible to carry 600 tons of oil fuel in the double bottoms, and if we had not converted the boilers to take Admiralty oil fuel fittings during the first six months of the War, while remaining at sea, that ship, after a few days out of harbour at high speed, could never have remained in the line with battleships of contemporary Admiralty design.

It might be argued by the technical protagonists of coal—if such people really exist—that modern coal-handling machinery could be devised to bring coal from any part of the ship to the fires, without requiring trimmers; perhaps it could, but how to do so without putting impossible encumbrances on the Naval Architect, impairing the W.T. subdivision of the ship, and introducing heavy and complicated machinery liable to go wrong at any moment in action, is quite beyond my vision.

Protection.

It has been claimed that coal bunkers provide protection against enemy action, which oil bunkers do not, and the case of a torpedo hitting H.M.S. "Marlborough" at Jutland is quoted as the classical example.[2] As a matter of fact, that torpedo expended most of its energy on a Diesel engine electric generator (much to the gratification of the Engineer Commander, who got a new and better one) and the saving of the ship by coal bunkers is simply not a fact. But in any case the claim, as to coal bunkers, is largely fictitious.

It is necessary, for reasons I have already shown, to start trimming down coal from the upper bunkers as soon as possible after leaving harbour in order to ensure an adequate supply in the immediate vicinity of the boiler rooms for action, and the supposed protection afforded by the coal in them will probably be lost by the time contact with the enemy has been established. It might even be the case that at the critical moment a bunker door might be open and jammed with coal.

These technical questions concerning the stowage of fuel on board, and its transport from the bunkers to the boilers, have been discussed at some length because they affect the Naval Architect in designing

[1] These figures are, at this distance of time, approximate.

[2] It has been asserted that the "Marlborough's" speed was only reduced by 2 knots due to the damage caused by this torpedo; according to the Official History, "Naval Operations," Vol. III, p. 412, by 2.30 a.m. on the night after Jutland the "Marlborough's" Division had fallen fully twelve miles astern of station because the flagship could not by then steam more than 12 knots.—Editor.

the hull, and because they show the almost crushing superiority of oil over coal from this point of view. Briefly, this superiority in meeting these conditions can all be summed up in the fact that oil fuel is a liquid and coal a solid.

Fuelling Ship.

Another advantage, arising from the same fact, is to be seen in fuelling ships. Fittings required for refuelling with oil are merely pipes, filters, and valves; and they involve much less disturbance to the hull structure than those required for coaling. The rate of refuelling can be considered as two to three times the rate of coaling, and that with practically no effort on the part of the personnel. Ships can also be stored and ammunition embarked at the same time. As soon as these operations are performed, the ship is ready for sea, without having to be cleaned, and without a fatigued personnel.

Effects on Design of Machinery.

In the design of the machinery, no actual advantage accrues to the main propelling steam turbines, from the use of oil fuel, but when we come to the boilers and boiler rooms the advantages are most marked The human element sets a limit to the size of fire grate which can be adopted, since, if the length of the grate is increased beyond about 7 ft. 6 in., the fires cannot be efficiently served and cleaned. The length of oil-fired boilers is only limited by the necessity to ensure that the particles of oil and air, necessary for its combustion, can reach the extreme end of the combustion chamber. Modern oil-fired boilers can be made up to a length of 20 feet and more if necessary. For high-powered ships, therefore, the use of coal involves a large number of small boilers, whereas with oil the same output can be obtained from a small number of large units; an arrangement which results in a considerable saving in the weight and space required for the machinery. It also permits of a more favourable W.T. sub-division of the hull with consequent improvement in immunity from underwater attack, both to hull and machinery.

Coal-fired boilers necessitate the installation of machinery and gear for getting rid of ashes; they require relatively more fan engine power; and the general effect on machinery design is to add greatly to the weight and space required.

MANNING.

The engine-room complement of a large ship is decided chiefly by the number of men required to steam the ship continuously at high power, working in three watches; it follows that this complement for a large coal-fired ship is from three to four times that of an oil-fired ship, power

for power. For example, H.M.S. "Tiger," 108,000 S.H.P., coal and oil —E.R. complement 600; H.M.S. "Hood," 144,000 S.H.P., oil only—E.R. complement 300. In a modern 8-inch gun cruiser an increase of at least 250 men on existing complement would be required if coal were used instead of oil. Accommodation, provisions, drinking and washing water have to be provided for this increase of complement—all absorbing additional weight and space which could and should be devoted to items of military importance.

This matter of additional accommodation, etc., is most vital to the problem of design, for it is already very difficult to find space for all the men required for fighting the ship. But, supposing for the moment that it were possible to convert the Navy as it exists to-day to an all-coal one, it would necessitate an increase of personnel of some 15,000 men. Incidentally, it would cost about thirty million pounds.

OPERATIONAL.

Under the heading of "Operational" I am including all those operations at sea under steam, both technical and military (for lack of a better term) which are affected by the fuel carried and used. It is impossible to separate technical and military considerations in this case.

Oil fuel ships can steam continuously at, say, 90 to 100 per cent. of their maximum power until all the fuel on board, wherever stowed, is expended, without any noticeably increased effort on the part of the personnel. There is little fouling of the combustion spaces in the boilers; no fires to be cleaned; no ashes to be drawn and discharged overboard; and no calls have to be made for assistance from the upper-deck complement.

SPEED.

As an example of maintaining high speed we lately had H.M.S. "Achilles" leaving Gibraltar one day and arriving in England the next. Again, H.M.S. "Suffolk," on receiving the signal that H.M.S. "Petersfield" was in trouble, and although she had one boiler out of eight empty and open for cleaning, arrived at the scene of the accident, 360–370 miles away, in about 13 hours.

ENDURANCE.

One of the special features desired in our ships was that they should have great endurance because of the extent of our Empire and the great length of our trade routes. Now, while it would be unfair to compare performances of modern oil-fired ships with ships of the past burning coal, it can be said on the indisputable authority, both of Naval Engineers and of Naval Architects, that in any modern design, with

displacement, armament, speed, the same in each case, the endurance on oil could be more than doubled, while the complement of engine-room ratings could be more than halved.

With the limitations of weight and space incumbent on all modern naval designs, the rate of forcing of the boilers is necessarily very high—with coal-fired boilers the consumption of coal per square foot of fire-grate must be large in order to keep the boiler dimensions and weight within reasonable limits. At these high rates the consumption of fuel is bound to be inefficient and relatively large quantities of unburned or only partially consumed fuel are carried away up the funnel in solid form, to the annoyance and disadvantage of the personnel and fittings on deck. In addition the boiler heating surfaces become foul and the gas spaces between the tubes choked with soot and ash, with the result that heat transmission is impaired, efficiency still further reduced, and the already dirty fires are required to burn even more coal than before if the output of steam is to be maintained.

Actually, as between the two fuels and with the latest improvements, combustion with oil almost attains that which is theoretically possible, and it is under perfect control all the time. With coal the limitations are most serious; one has only to read the Admiralty regulations in the Steam Manual of the all-coal-fired ship days to realize this. A full power trial then consisted of 8 hours at 100 per cent. F.P. and 16 hours at 60 per cent. Sixty per cent. was the maximum power obtainable until the coal was finished and, speaking from considerable experience, it can be said that even this low percentage of power depended very largely on the organization, the skill, and the endurance of the engineering personnel with, in many cases, frequent calls for deck assistance to bring the coal in distant bunkers to the vicinity of the various stokeholds.

Is this enormous handicap with all its effects on the qualities of the ship to be lightly accepted? I know of no naval Engineer Officer who has experienced service under both conditions who would think twice about the matter.

Flexibility.

Changes of speed, and without making smoke, are easily obtainable with oil-firing; with coal, comparatively large increases of speed must await the thickening up of the fires, while subsequent decreases involve ample time for burning down the fires and, of course, uneconomical expenditure of fuel.

A modern destroyer at sea with all boilers alight can increase from, say, 15 to 30 knots, just as fast as the ship can gather way, and go on increasing to full power and speed all within ten to fifteen minutes.

I have seen it argued that this characteristic is not one required of destroyers in war time; but it most certainly is, and I imagine the matter is one which can safely be left to the opinion of those officers who have commanded destroyers.

Smoke.

Owing to incomplete combustion, it is impossible in naval designs, for reasons already stated, to avoid the production of a certain amount of smoke with coal-fired boilers, more especially at high rates of forcing and large changes of speed. In oil-fired ships, the combustion of the fuel is under complete control and production of smoke can be entirely eliminated.

From the point of view of visual signalling and the handling of the fleet, the advantage of being able to work with a clear funnel is obvious. Moreover, with oil, the making of smoke is under control and can be utilized for smoke screens for tactical reasons. Control of smoke is of high tactical and gunnery importance, and in this respect coal-burning ships are at a very definite disadvantage.

Changes of Trim.

I have already mentioned the advantages of oil fuel to ship design—stowage and ease of supply to the boilers in adequate quantity to meet all demands; but there is another, an operational advantage, and one that under certain circumstances both in war and peace may be considerable. In case of damage to the ship from enemy action or from accident, such as collision or grounding, rapid changes of heel, trim, and buoyancy can be made by transferring oil from one part of the ship to another. This is not possible with coal.

Personnel.

An argument which has been advanced in favour of coal, but which would scarcely be worth mentioning were it not put forward in all seriousness, is that coaling ship was an operation which brought untold good to the Navy because it built up the spirit and physique of officers and men, and provided the finest means of selecting petty officers and of testing the quality of junior executive officers—nothing is said about the infinitely more exacting work of the engineering personnel in the bunkers—and, further, that the use of coal produced a type of British stokers, engineers, and seamen who were to a modern fleet what old-fashioned sailors were to the fleets which our ancestors commanded. Not, their parents, nor their upbringing, be it noted, but coal was alleged to be responsible for this fine personnel!

This form of argument has been used, on the introduction of some new armament or appliance, by every "die-hard" ever since the days of bows and arrows, and there is only one answer to it!!

SUPPLY.

Now we come to an important question which I believe really forms the basis of all the arguments for coal and of all agitation against oil, and that is the question of supply. It is contended that while our supplies of oil could all be cut off at source, the supplies of home-produced fuel are always available.[1] Putting aside for the moment those cranks who will not listen at all to any of the reasoned arguments on the coal *versus* oil question, it is quite natural that many people who are deeply concerned for the Navy and the safety of this Empire, should ask whether we can keep going under all the possible circumstances of war and requirements for the adequate defence of the Empire. In this matter of supply the whole question of oil *versus* coal is most involved, because modern transport of almost all kinds, and in all the three Services, depends on adequate supplies of liquid fuel.

It would be a most serious impeachment of our controlling authorities —and that includes others besides the Board of Admiralty—if they had not been the very first to realize the importance of this question, and to make a proper provision.[2] It may well be that risks have been taken, and yet those risks have received careful and proper discussion and have been found in all the circumstances to be justifiable. It is quite obvious that none of us here knows quite enough to discuss the matter properly. I certainly do not pretend to myself, nor, I imagine, would it be altogether in the public interest to give all the facts in connection with arrangements for supply of oil in war. But this at least can be said, we are not dependent entirely on supplies from any one country, or from any one part of the world, and it is as ridiculous to say that our supply of oil is liable to be cut off at its source at any time without a shot being fired to defend it, as to say the same of any other raw materials such as food.

Reserves of oil can be and, I have no doubt, are being built up as the responsible authorities may judge necessary. In some respects it is easier to build up reserves of oil at distant fuelling bases than it is to build up reserves of coal—a fuel much more liable to deterioration and much more of which for the same performance would be required: over

[1] The supply of Welsh coal—a supply limited to a single source—has been curtailed both during and since the War by general strikes.—EDITOR.

[2] The question of the possibility of home-produced liquid fuels is beyond the purpose of this lecture.

40 per cent. more tonnage is required to carry the same useful quantity of coal than for oil; in point of fact the position is far worse than that, because oil can be carried in the double bottoms and in tanks other than bunkers, and in those of ships other than pure colliers or oilers.

Another point that is often forgotten is that there can be no certainty nor, I hope, probability that future wars will be fought entirely in Home waters and, quite apart from the difficulties of transport mentioned above, there can be little doubt that in most parts of the world it is now easier to get oil fuel than good Welsh coal.

The one disadvantage of having to transport oil in large quantities to these islands is fully recognized, and without exception everybody concerned would much prefer to use a home-produced fuel, were it possible to do so.

I have not referred to a point which has been raised occasionally—that the Navy could use coal in peace time and turn over to oil in war time. It is really not worth arguing about; of course, it could be done, but not if you want an efficient Navy.

SUMMARY.

To summarize: the following are, briefly, the advantages obtained from the use of oil:—

Increased endurance for a given weight of fuel—approximately up to the ratio of 2 to 1;
Longer periods at sea without having to return to harbour;
Increased power and speed for a given weight of machinery;
Alternatively, equal power on a reduced weight and space of machinery, permitting the difference in weight and space to be devoted to other military requirements, viz., armour protection, armament, etc.;
Increased flexibility;
Reduced complement;
Short time required in harbour to replenish with fuel and stores, and ability to go to sea at once without a fatigued personnel;
Full power can be maintained as long as fuel lasts, instead of only 60 per cent.;
Absence of smoke and ability to control smoke for tactical purposes;
Transfer of fuel for correction of heel and trim in event of damage;
Transport to distant fuelling stations more easy and less of it required in store;
No deterioration in storage.

In conclusion, it can be stated that on a limited displacement it would be impossible to design a coal-burning ship having the same military characteristics as a ship burning oil.

It has been customary to state from time to time that were we to revert to coal we should be accepting a handicap which could not now be undertaken without the gravest prejudice to the strength of the fleet and its operational efficiency; but do not let us play with this question, the fact is we should render the fleet useless for the defence of our Empire.

DISCUSSION.

CAPTAIN B. ACWORTH, R.N., said that this fuel issue had been before the country for three years. He thought he was personally responsible for setting it in motion. He agreed with every word the Lecturer had said on the technical aspect, and he (Captain Acworth) had never been accused of being in error technically. But there were one or two points which Sir Reginald had made to which he would like to refer.

There was not an executive officer or engineer who did not know perfectly well that there had been no trouble whatever from any coal-fired ship in the late war, but that, on the other hand, there had been intense trouble in the oil-fired ships, whose reserves of fuel, Admiral Jellicoe had stated at Liverpool, had fallen to three weeks supply. Our oil-fuel ships were nursed in harbour, and the coal-burners had had to reduce speed in order to keep station with oil-burners.

There was the question of endurance. When the Lecturer talked about endurance, he was rightly, and naturally, speaking as an engineer to whom a machine, as a machine, was everything. But he (Captain Acworth) used to be under the impression that the basis of British maritime power was the number of fuelling bases which we had all over the world, and which other countries (particularly Germany) lacked. Why reduce the fighting capacity of a British ship in order to enable her to steam 10,000 miles past British fuelling bases?

The Lecturer had mentioned protection from gunfire and had disparaged it; he had also mentioned something about a Diesel engine in the "Marlborough." Personally, he had seen the despatch of an Admiral, published in *The Times* when Admiral Luce died about two years ago; that despatch had been almost exclusively concerned with his thankfulness that his ship had been fitted with coal bunkers, because she had been struck six times below the water-line and yet had remained perfectly intact.

There was not time to enlarge on these points, because he wished to turn to quite a different subject. He wanted to make the point, particularly, that the ability of the Navy to move was really not an engineering question; all great engineers had confirmed that. The ability of the Navy to move under all circumstances is essentially a strategical question.

During the discussion in the House of Commons two nights ago, Mr. Isaac Foot had almost apologised for bringing forward what he had called "a dull subject" (that was, this matter of the Navy's ability to move) "compared with the question of high policy which had been discussed"—the implication was that the ability of the Navy to turn its propellers was not a question of high policy at all. Captain Wallace—Civil Lord—had stated "I think the bare idea that the supply of fuel for the Navy might at any time be liable to interference is

repugnant to everyone, and it is one which in certain circumstances might be very alarming." Personally he should say the idea was more than repugnant. The supply could be cut off at its source, because it was not under our physical control in any single instance. Captain Wallace had gone on to say " It is perfectly true that if the main fleet were operating in the immediate neighbourhood of these islands " (what Captain Wallace meant by " immediate " he did not know—European waters presumably) " coal would be an advantage, but that advantage would completely disappear if the fleet were engaged elsewhere " (meaning, presumably, in the East). " Oil fuel of a quality suitable for our battleships is obtainable almost anywhere in the world, but the supply of coal of a quality suitable for use under the boilers of our high-speed vessels is obtainable practically in South Wales alone." Then, most surprisingly, Captain Wallace had gone on to say " contrary, therefore, to what appears to be a fairly general impression, our fuel supply is on the whole rather better assured by oil than by being completely dependent on steam coal." The point which the Civil Lord did not mention was that although the oil was now at those places all over the world, it had got to be carried there; moreover, it had to be carried in tankers which were useless for bringing back the food and raw material on which the nation lived. The result was that the sea is being littered with " half-time " tonnage.

Those who had served for thirty years at sea, as he had, in every type of ship, disputed absolutely that a sound fighting ship could not be built on a coal basis.

He would conclude by reminding the Chairman that two nights ago in the House of Commons the First Lord had said that small battleships were useless—technically, strategically, politically and pacifically—and were quite out of the question. Sir Roger Keyes, in recalling the deplorable destruction of the " Tiger " and the five " Iron Dukes " (all coal-burners), had gone on to say that the " Tiger " was one of the only four ships in Europe which were capable of attacking a poor little German pocket-battleship of 10,000 tons.[1]

Admiral Sir Sydney Fremantle heartily congratulated his old friend, the Lecturer, on the terse, uncompromising and, withal, humourous way in which he had made out his case. It was a case which wanted stating in view of the persistency of advocates of a reversion from oil to coal burning in ships in the Navy, and it could not have been made out more ably or comprehensively.

Captain Acworth, in his very interesting and provocative book, had made the utmost of the case for coal; but he had just stated that he agreed with every word the Lecturer had said; how, then, could he avoid agreeing with the Lecturer's conclusions?

From the military point of view, the case for oil fuel was absolutely overwhelming. If he might venture to give a little advice, he would recommend those gentlemen who wished to go back to coal to cease from fighting for a lost cause. Such a procedure took up a very considerable amount of time of officials in continually answering their arguments, as well as wasting their own time. They had much better devote themselves to finding economical means of converting the coal in which they were so much interested into oil.

He could give one or two practical illustrations of the advantages which ensued from the use of oil. In the first place there was the readiness for steaming at

[1] H.M.S. " Tiger " carried 2,800 tons of coal and 3,480 tons of oil, subject to a maximum fuel capacity of 4,900 tons. The reason why she would have been one of four ships capable of competing with the new " Deutschland " class is that she had the necessary *speed* as well as the necessary armament, not because she could burn coal as well as oil. The other three ships are all oil-fuel burners.—Editor.

high speeds at very short notice. He had happened to be commanding the First Battle Squadron, consisting of five ships of the " Revenge " class, on one occasion off the coast of Portugal. They had been hurried off to Gibraltar at three hours' notice. Those ships were from five to three years old; nevertheless, in three hours' time, they had started at full speed, and they averaged between 20.7 and 21.5 knots, their designed speed being 21 knots. They had kept that speed for six hours, and each one of them had said that they were prepared to go on indefinitely while the oil lasted.

Then there was the advantage of oil fuel from the point of view of making a smoke screen: after the evacuation of Gallipoli, instructions had been given to keep the Turkish gunners busy by feint attacks and occasional bombardments in order to keep them in their forts. The Turks had a playful habit of letting us get close to the shore, and not till we turned round would they start firing. It had been rather a game of bluff. He had taken very great care to use an oil-fired and not a coal-fired destroyer for that purpose, and the very moment the Turks opened fire he made his smoke screen and was off.

As to the effect of oil-firing and coal-firing on the men; he had had the honour of commanding a cruiser squadron in the War which had been based on the Shetlands and had patrolled up to the Arctic Circle. Those ships did 4½ days at sea and 3½ days in harbour. During the first day in harbour between 800 and 1,200 tons of coal was taken on board—a most exhausting business for everybody in the ship; for most of the remainder of the time everybody was employed in cleaning ship, leaving little time for refitting and maintenance or for recreation.

As the Lecturer had gone into the history of the matter he thought he was justified in remarking that in 1908, when the question had been a very live one, he happened to be at the Admiralty as Head of the War Division, and he had been called upon sometimes to make reports on strategical questions. Admiral Madden, who at that time had been Fourth Sea Lord, and he had gone into the matter in detail together, and the whole point had been settled by the one principle that if we lost the command of the sea the British Empire would perish—not because we could not provide oil for our men of war but because we should not have enough to eat. Therefore our strategy in every war must be based on the fundamental principle that we must retain the command of the sea.

There was another point which had worked in favour of oil, and that was that at that time somewhere about 20 per cent. of the British Navy had been actually based for strategical purposes on the United Kingdom. The rest of the British Navy had been abroad. The average distance to which fuel had to be sent for the use of the Navy was far less with oil than it was with Welsh coal. Naval officers who served on distant stations knew the great difficulty of getting Welsh coal out in China, for instance.

Captain Acworth seemed to think that because this country had naval bases all over the world, therefore we were not to make the utmost use of them; and because we had got naval bases what did endurance matter? In the first place, these naval bases were not ubiquitous. Where was there a base between the Falklands and Esquimalt? Endurance was of the utmost value. It was difficult to have too many naval bases, but every one would assist our fuel endurance, and personally he could not see why because we had many naval bases, we were therefore justified in doing away with a large proportion of the advantage which we derived from them.

Admiral Sir William Goodenough said that he thought it had been patent to everybody that, from an engineering point of view and from a technical point

of view, to return to coal as a method of propulsion would be a very retrograde step. Cleanliness, speed, ease of supply, economy in consumption and in the construction of ships would all have to be sacrificed if we went back to coal. He thought that those who argued on such lines would presently desire to go back to masts and sails, then to oars, and finally to that remarkable type of craft which had no method of propulsion at all, namely, the Ark.

There was only one point he wished to dwell on, and that was speed. He had seen it argued that speed was not the governing factor. It might not by itself be the governing factor, but generally speaking it was one of those factors governing victory. The object in war was to divert one's adversary from his purpose, and in naval warfare that was largely dependent on being able to dominate his head. Speed was a necessity.

There was one argument only that could be produced in favour of coal, and to his mind if it was taken to its logical conclusion even that was a bad argument; it was that coal was a home product and easily obtained in times of war. There was also the argument that we should support home industries. As to the latter, it would be seen what Captain Wallace had said, and he ventured to say that though Captain Wallace had not been very well reported, that part of his speech as to the use of coal had been admirable.

The point was that what was required for the purposes of the Navy was the best fuel obtainable, and if our Navy was reduced to such a state that in times of war we could not command the routes by which that essential commodity arrived in this country, or in any other country where our bases were, then we had better abandon everything—the Empire, our food, our freedom, and everything that had made us what we were. It was not a bit of good going on if we denied to this country and to the other bases what was an essential commodity for the proper prosecution of a war.

ADMIRAL SIR REGINALD TUPPER remarked that, so far as he was able to tell, this country's reserves of oil were very vulnerable from the air. All over the country huge tanks were to be seen with oil stowed in them. It seemed to him that those tanks should either be under the earth or under the sea.

ENGINEER REAR-ADMIRAL LINDSEY STEPHENS: The Lecturer did not refer to the economical aspect of the so-called colloidal fuel. Can it be made an economic proposition?

THE LECTURER:

THE LECTURER, in reply, said: with regard to the last question, the matter of price for fuel for the Navy is not a primary one. The Admiralty have never tied their hands over the matter of price. They have always insisted on that fuel which is best for naval purposes; but both from the economic point of view and that of efficiency, it is quite certain that the pulverised mixture would not be suitable.

Captain Acworth has said that he has been to the best engineers he can get hold of, but he does not reveal who they are. As a matter of fact I do not mind mentioning that the people he has actually quoted in his books are nearly all misquoted. One great authority in marine work—although he is not an authority in naval work—is Mr. John Johnson, Superintending Engineer of the Canadian Pacific. If you read him, as quoted by Captain Acworth, Mr. John Johnson says that coal can be used in *ships*; he does not say *warships*; he does not mention warships. As a matter of fact he has never served in warships. Captain Acworth produces another authority, an Engineer-Admiral, whom he quotes as supporting

coal. But that particular Engineer-Admiral wrote to me in 1931 (this is the actual letter) : " I expect you are having a fight to keep coal out of the ships. In my opinion it would be a retrograde step to adopt it again ; but to get the oil from the coal is well worth a push, and I hope to see that assured in the dim future." The other authorities that Captain Acworth produces are neither naval officers nor engineers, with the exception of one whom I may mention, namely, Admiral Sir Reginald Hall ; I would very much like to hear Sir Reginald Hall's personal views on this question, because I would have the greatest respect for them. I cannot think that, after reading the statement for oil, he would wish us to revert to such a handicap as coal.

The late Admiral Luce was quoted as having thanked God for his coal bunkers in the last war ; but what he should have thanked God for was not his coal bunkers but the fact that his coal bunkers happened to be full of coal.

I was very glad to get the support of Sir William Goodenough on the question of speed, because I am not competent to say anything about speed, but you get much more speed from oil, and maintain it much better than you do with coal.

The question which Sir Reginald Tupper raised about the protection of oil tanks from air menace is hardly within the scope of my lecture, but I admit it is one which must give anxiety to all thinking people.

THE CHAIRMAN :

THE CHAIRMAN : We have listened to an admirably clear lecture on the subject of oil fuel. By reason of his great experience and of the responsible positions he has held, the Lecturer must be one of the greatest authorities in the world on such technical questions. I must congratulate Captain Acworth on his courage in rising and putting his case after such a damning indictment of coal as against oil. But, as I understood Captain Acworth, he agreed with the Lecturer from the technical point of view, and his objection to oil lay in the question of supply. That, of course, must always be a great anxiety. When this Government came into power two and a half years ago, it inherited a very serious shortage of oil fuel reserve for the Navy. Up to 1927 there was a ceaseless fight between the Admiralty and the Treasury to get enough money to build up gradually a sufficient reserve of oil wherever it was likely to be required in time of war. From 1927 onwards the supply fell lower and lower, and it is now absolutely essential to build up, as soon as possible, a sufficient reserve of oil for the Navy's use in peace and in war. After this lecture I do not think that anyone can doubt that coal as a fuel for the Navy is dead.

The customary votes of thanks to the Lecturer and Chairman were carried by acclamation.

THE DEVELOPMENT OF THE FLEET AIR ARM

By WING COMMANDER W. R. D. ACLAND, D.F.C., A.F.C., R.A.F.

On Wednesday, 24th January, 1934.

ADMIRAL SIR RICHARD F. PHILLIMORE, G.C.B., K.C.M.G., M.V.O., in the Chair.

THE CHAIRMAN introduced the Lecturer.

LECTURE.

IN order to appreciate fully the great developments which have taken place in the Fleet Air Arm—the branch of the Service trained and organized for embarkation in H.M. Ships, we must go a little further back than the date on which the Fleet Air Arm itself came into being. Interesting and valuable work in connection with the operation of aircraft with the Navy had commenced by 1912. Time will not permit me to give any details of this early work beyond recalling the fact that by that year aeroplanes were being flown from a deck fitted to the battleship " Hibernia," that in 1913 the first carrier—the converted cruiser " Hermes "—was commissioned, and that during the same year the first torpedo-carrying seaplane appeared at Sheerness. In the early part of the War, naval aircraft did useful work at the Dardanelles, in East Africa, and off the Belgian coast. Later in the War a great deal of pioneering and experimental work was carried out, the results of which may be said to have been the foundation of fleet flying as we know it to-day—not only in our own fleet, but in the navies of the world. The design and construction of the first flush-deck carrier lies to the credit of the British Admiralty; the first successful landing on a ship under way was made by an officer of the Royal Naval Air Service; flying from short decks and turrets was developed by that same Service.

In making an historical survey of the development of the Fleet Air Arm, however, I propose to start from 1917, because it was during that year that the most important developments took place—developments which ultimately produced the Fleet Air Arm of to-day, and which included most of the research and pioneer experiments in the operation of aircraft with the fleet.

THE WAR PERIOD.

Early in 1917, Admiral Beatty, dissatisfied with the naval air situation, enquired of the Admiralty their policy in regard to the Royal Naval Air Service. Up to that time there had been no systematic policy; but without waiting for a reply to his question the Commander-in-Chief constituted the Grand Fleet Aircraft Committee to report upon the Fleet's air requirements. At this date the total strength of aircraft for service with the Fleet was twenty-four—twelve for reconnaissance and twelve for anti-Zeppelin work. These aircraft were carried in three carriers, the "Campania," "Engadine," and "Manxman" and, with the exception of four landplanes in the "Manxman," all were seaplanes. The "Campania" was equipped with a flying-off deck from which both reconnaissance and anti-Zeppelin seaplanes could be flown, but the "Engadine's" aircraft could only operate from the sea, and only the four landplanes could be flown from the deck fitted to the "Manxman."

Eight out of these twenty-four available aircraft were therefore dependent upon good sea conditions to operate, and experience soon showed that aircraft, both seaplanes and landplanes, could be flown off the deck under sea conditions in which it was impossible to operate seaplanes from the surface; also, landplanes could get off the deck so much more easily than the heavier seaplanes, that the number of occasions on which aircraft could be operated would be materially increased, if landplanes were used. All this experience influenced the Grand Fleet Aircraft Committee in their deliberations, and in due course they recommended the introduction of landplanes for attacking German airships. It was this decision which marks the introduction of the landplane for service at sea.

The Committee had considered the air requirements of the Grand Fleet under five main headings:—

(1) Reconnaissance over the North Sea.
(2) Screening the Fleet by aircraft.
(3) Heavier-than-air aircraft for duty with the Fleet.
(4) Carriers.
(5) Seaplanes and balloons as aids to gunnery.

The first two duties were allotted to shore-based aircraft, to flying boats, and airships, but it is with their other recommendations that we are now concerned. The duties allotted to heavier-than-air aircraft were "close reconnaissance" and "anti-Zeppelin duties," and the minimum requirements then stated appear very modest in the light of future developments. The estimated requirements were twenty reconnaissance aeroplanes, which it was calculated would enable two to be maintained in the air during the approach, and subsequently one;

and twenty anti-Zeppelin landplanes. Even so, new carriers would be required, and as there was little prospect of building them in less than about eighteen months, and the " Argus " which had been taken over in frame could not be ready for some time, the Committee suggested the conversion of the " Furious," then nearing completion. This proposal led to considerable discussion on the advantages and disadvantages of substituting aircraft for gun-power. It was perhaps at the time a drastic recommendation, and Admiral Beatty, although he agreed that the provision of more aircraft and the means to carry them were urgent, opposed the conversion of the " Furious " if it necessitated reducing the armament, and therefore the fighting value, of the ship. The fighting value of the " Furious " class — " Furious," " Courageous " and " Glorious," came in for considerable criticism, but in the end it was decided to convert the " Furious," and various schemes were sent to the C.-in-C. for consideration. Admiral Beatty showed himself to be a firm believer in the air weapon by agreeing that, provided the ship could be converted into an efficient carrier, the removal of the forward 18-inch gun and the consequent reduction of the value of the ship as a fighting ship must be accepted.

In July, 1917, the " Furious " commissioned with three seaplanes and five single-seater landplanes. Her flying officers had done a special course of deck-landing training at the Isle of Grain. At the same time the first ship to be designed and built as a carrier, the new " Hermes," was laid down.

The arrival of the " Furious " in the Fleet enabled the first experiments in deck landing to take place, and on 2nd August, 1917, Squadron Commander Dunning made the first landing upon a ship under way. Preliminary trials of flying past the ship, and after passing the mast and funnel drifting in across the forward deck, seemed to show that the operation of alighting on the forecastle was feasible. In his first landing, Dunning drifted over the centre of the deck as the ship steamed at full speed head into wind; a crew of officers seized the aeroplane whilst still in the air and held it as the pilot throttled down his engine and alighted on the deck. But he realised that this was not a practical method of landing, and before his next attempt, he instructed the deck party not to touch the aircraft until it was on the deck. In his third attempt a tyre burst, the aircraft slipped over the side and the gallant pilot was drowned. No further attempts at landing were made although tests continued; but the foundation stone of all deck flying had been laid.

Whilst these experiments were progressing, equally important developments were being made in operating single-seaters from short decks. The Grand Fleet Aircraft Committee, bearing in mind the

success achieved in the operation of landplanes from the deck of the "Manxman," had recommended that fighters should be carried in certain light cruisers. A short deck had been fitted to the "Yarmouth," and on 21st August, 1917, an aeroplane from this ship successfully attacked the Zeppelin "L.23." This success gave impetus to equipping light cruisers with aircraft, and a further great advance in operating them from fighting ships was made as a result of an aeroplane being successfully flown from a turret in H.M.S. "Repulse", and later from a turntable fitted to a cruiser and trained into the relative wind.

Admiral Beatty again pressed for an air policy as of "vital moment to our air supremacy at sea during the year 1918," and in September, 1917, a series of proposals for the expansion of Grand Fleet aircraft was sent to him for comment. These proposals were discussed in the light of the success achieved in flying aeroplanes from turrets and short decks, and the failure to alight successfully on the forward deck of the "Furious." As a result, a further advance was made by the decision that—

(i) All light cruisers and battle cruisers should carry fighting aeroplanes provided their gun armament was not interfered with;

(ii) The "Furious" should be fitted with an after landing deck.

This distribution of aeroplanes amongst all fighting ships affected all previous estimates of the Fleet's air requirements; and the broad policy of carrying fighting aeroplanes in fighting ships, and all reconnaissance and torpedo aircraft in special carriers was formulated.

About this time an important decision affecting the control of fleet aircraft had been taken. The C.-in-C. had urged a centralized control for fleet air units, and had proposed the appointment of a Flag Officer to take full administrative control of all fleet aircraft. It was an appointment which, as we shall see, became essential again in later years for the development of fleet air work, although it lapsed for a period after the War. At the beginning of January, 1918, Rear-Admiral Sir Richard Phillimore was appointed Admiral Commanding Aircraft, and he hoisted his flag in the "Furious," now fitted with a landing deck aft. In accordance with the new policy of carrying fighters in fighting ships and reconnaissance aircraft in the carriers, that ship then carried fourteen two-seater reconnaissance landplanes and only two single-seater fighters.

The return of the re-fitted "Furious" enabled further experiments in deck landing to be carried out. The landing deck was fitted with fore-and-aft wires nine inches above the deck, anchored at each end, and underneath this at the forward end, a wooden ramp. Across these wires at intervals of about 30 feet, ropes weighted with sand bags at each end were laid. As the aeroplane ran down the deck a hook on the

fuselage or the undercarriage struts picked up these weighted ropes, so retarding the momentum. As the aircraft ran up the ramp, small hooks on the axle or horns on the skids engaged in the fore-and-aft wires and the friction increased until it was brought to a standstill. Trials of this gear at the Isle of Grain had proved it to be satisfactory, but the huge structure formed by the funnel, mast, and bridge, in the direct line of flight, caused such bad eddies that the pilot had little or no control of his aircraft ; of the many attempts to alight, only three were successful. It was therefore decided that landing on the deck was impracticable, and the Captain of the ship reported that in future carriers, the funnels and bridge should be aft or on the side of the ship so as to give a clear flow of air over the landing deck. This experience led to the re-design of the " Argus " which had been launched in December, 1917, and, although it delayed her completion until September 1918, it resulted in the construction of the first flush-deck carrier with an absolutely clear flying deck.

The " Furious " continued to work with the Fleet, and occasionally aeroplanes were flown from her to carry out reconnaissance flights, and on one memorable occasion they successfully attacked the airship sheds at Tondern. But up to the time of the Armistice, a flight entailed the loss of the aeroplane, for, on its return, it had to alight in the sea ahead of a destroyer which picked up the crew and usually salved the engine, but endeavours to salve the aeroplane itself more often resulted in it becoming a complete " write off." During this period the construction of the " Hermes " and the conversion of the Chilean battleship " Almirante Cochrane " while still in early stages of construction to the " Eagle " were being proceeded with. It had been found impossible to apply the design of the " Argus " to these ships, and the Assistant Director of Naval Construction, Mr. J. H. Narbeth, originated the scheme for building the funnels on an island on the starboard side of the ship. The demand for a clear deck, however, remained so strong that in the final reconstruction of the " Furious " all superstructure was cleared away and a design similar to the " Argus " adopted. In later years, after the War, further experience with the " Eagle " and " Furious " proved that the island was not a serious obstacle to deck landing, and as it is a far simpler problem for the naval constructor and provides other advantages, such as less heat and more head-room in the hangars, this design has been generally accepted. It has been followed by other nations, and seems likely to be perpetuated.

By March 1918, the fruits of those early experiments became apparent. Aircraft for the Fleet were landplanes, and the number of carriers had been increased by the commissioning of the " Furious," " Pegasus " and " Nairana." Aeroplanes carried on turntables or on turrets of fighting

ships could be flown off without the ship altering course, and the standard fighter, the " Camel," was a match for any German aircraft. We now possessed the means for the attainment of air superiority in any naval operations in the North Sea ; but the problem of getting the aircraft back had to await the arrival of the " Argus " before it could be solved. The few experiments carried out before the Armistice proved the correctness of her design and the problem of using aeroplanes from a ship in such a way that they might reasonably be expected to be available for more than one flight, appeared to be nearer solution.

POST-WAR DEVELOPMENTS.

The next six years were to see rapid strides. Landing on the deck was to become the normal duty of every fleet pilot instead of being confined to a few specially selected pilots. In 1919 it was decided no longer to carry aeroplanes in capital ships and they were only embarked when required to take part in fleet exercises. In a paper written about this time, the hope is expressed that " we must look forward to the time, as suitable machines develop, when fleets will, so to speak, take their aerodromes with them in the shape of a carrier, and the carriage of aircraft on capital ships with its attendant disadvantages and dangers will be a thing of the past." This prophecy had been fulfilled by 1926, when carriers formed an integral part of the Home and Mediterranean Fleets.

The period between 1919–1925 was one of further experimental work during which the results of trial and error during the War, when the high rate of consumption of aircraft did not matter so much, were put to further test. Peace brought with it opportunities for developing the detail of methods which had had their inception during the War. If it is true to say that the War period was one in which the value of aircraft for fleet work was first fully appreciated, it is equally true to say that the seven years immediately after the War witnessed the perfection of the material side so that subsequently the methods of employment of aircraft might develop unhampered.

The carrier in which most of the work was carried out was the " Argus." The " Furious " was withdrawn from service again to be altered in the light of further experience, and the " Eagle " and " Hermes " were as yet uncompleted. Thus for over five years, the " Argus " became the scene of the development of deck flying which was still regarded as an art in itself. To begin with she was fitted with arresting and holding-down gear similar to that used in the early days of the " Furious " ; it soon became apparent, however, that arresting gear was not required but, as aircraft continued to go over the side, it was thought that some gear, which would hold the aircraft where it touched the deck, was

necessary. Many ideas were put at the Admiralty's disposal by those with inventive minds, and these varied from modified designs of the fore-and-aft wires, to magnetic decks and even, I believe, to a deck constructed with sides and ends, like a shallow tank and filled with some sticky substance such as treacle ! The scheme adopted was an adaptation of the " Furious " gear, except that the wires were made to pass over the centre lift which was lowered about 12 inches. As the aircraft ran down the deck, it fell into the well so formed and in doing so pushed hooks, attached to the undercarriage, into the wires and so became securely held. But it was found that the centre lift was too narrow and a considerable number of aircraft continued to go over the side. The cure appeared to be to devise some method of reproducing the well effect over the entire deck. This was achieved by building a ramp forward and aft on the flying deck and supporting the wires, which ran the full length of the deck, on hinged flaps at about 30 ft. intervals ; these flaps could be knocked down as the aircraft ran down the deck. This system was found to be satisfactory and met the demands of the time, but it necessitated very strong undercarriages and special fittings on the aircraft, all of which hampered the designer in producing a really efficient aeroplane for fleet work. A great many accidents were indirectly due to the gear, and some might well have been avoided had it not existed ; but even so there is no doubt that it was largely due to the confidence which it instilled in pilots by the knowledge that they were less likely to go over the side, that flying with the fleet was able to progress. The gear was retained up to 1924, and was used in the " Argus," " Eagle," and " Furious." In 1924, the abolition of the arresting gear as it was then called was first proposed. It was felt that it had ill effects on the design and efficiency of fleet aircraft, and progress in deck landing was not advancing as it should. The number of minor accidents handicapped efficiency, and we did not appear to be approaching the standard of simplicity of alighting on an aerodrome. The pilot was never sure whether his hooks engaged or not, so he could not open up and go round again ; a landing which normally might escape punishment spelt minor accident ; and handling on the deck was slow and necessitated high stepping by the airmen more worthy of a beauty chorus.

The " Eagle " commissioned in 1920 for initial trials of the first island carrier. She was far from complete, but it was essential to confirm the design before proceeding. A special flight formed at Gosport to carry out these trials which were successfully concluded, in the later stages without the use of wires and with something like six different types— " Panther " ; " B.F." ; " De H.9 " ; " Cuckoo " ; and " Camel." So far so good ; but the abolition of wires could not be approved without rough weather trials. Palisades were substituted for wires in the

" Argus," and in the succeeding trials pilots began to come round to the new ideas. Those flying lighter types were quite happy in good weather without the wires, but the pilots of heavier types were not, and in both cases holding-down gear was considered essential during rough weather. Further trials proved that, provided the aircraft was landed well forward or when the ship was on an even keel between her rolls, it was quite practicable to alight when the ship was rolling 16° out to out or pitching with a rise and fall of 10 feet. By the middle of 1927, sufficient experience had been gained to justify substituting palisades for wires, and by 1927 we had reached the conditions now met with in a carrier: a flush deck with no obstuctions and a rounded end to the flying deck—the nearest approach to aerodrome conditions which could be achieved. From this time onwards the operation and design of aircraft could proceed unhampered, and we shall see how it was from about this year that both really went ahead.

Whilst these technical developments were being made, the organization and control of fleet flying was exercising the minds of the Government. A Committee under Lord Balfour was appointed to investigate the whole problem. Should it be a branch of the unified Royal Air Force or should it result in a reversion to the Royal Naval Air Service and the Royal Flying Corps? The Government's eventual decision and the subsequent arrangement come to between the Admiralty and the Air Ministry were, in effect, a compromise. Whilst the principle of a unified flying Service was upheld, the organization of the Fleet Air Arm provided for the employment of a large percentage of naval officers, and the Admiralty, who pay for the Fleet Air Arm by means of a grant in aid, continued to have entire operational and disciplinary control. A further detail of this arrangement provided that all Observers should be specialist naval officers; hitherto they had been R.A.F. officers, most of whom had started life in the Navy and had served as Observers in the R.N.A.S. Not less than 30 per cent. of the embarked pilots should be R.A.F. officers, the remaining 70 per cent. being naval officers attached to the R.A.F., and holding R.A.F. commissions. It was laid down that the Fleet Air Arm units should be part of the Royal Air Force, with due adjustments for their special functions, and they were included within the system of training, organization and technical supply common to the R.A.F. as a whole. This policy has been endorsed by successive Governments and, without exception, by the various Government Committees within whose purview the problems of Imperial Defence have come.

Thus the years 1923–26 witnessed the combined efforts of Admiralty and Air Ministry to arrive at a sound and acceptable organization for training and control of the Fleet Air Arm and if, looking back, this

period seems to have been somewhat long, I think we must remember that the two departments held widely divergent views both worthy of most serious consideration ; and it was only by complete discussion and thorough thrashing out of every detail that an organization which has proved so satisfactory could have been arrived at.

During the War and up to March, 1923, the units with the fleet were organized on a squadron basis. This organization, however, proved unsuitable, and from 1st April a new organization by flights of six aircraft came into existence ; this was adopted because it could provide greater flexibility and facilitate the allotment of aircraft to carriers. By 1926 there were the equivalent of nine squadrons, comprising 108 aircraft.

The Admiralty had decided, in 1920, that the policy of carrying aircraft in capital ships and cruisers should be re-introduced, both for the benefit of keeping pilots trained in this form of flying and for the equally important purpose of training the ships' crews. There was, however, very little turret or platform flying during the period, only three successful flights taking place from heavy ships,—" Hood," " Warspite," and " Valiant." One crash occurred in the " Repulse," and from that date turret flying ceased to be practised, although the platforms and fittings were retained. The discontinuance of turret flying was partly due to the introduction of large multi-seaters for fleet spotting. About 1924, however, H.M.S. " Vindictive " was commissioned for service on the China Station and was fitted with a catapult with which to operate her seaplanes. The experience gained in this ship was utilised to develop the catapults which are now fitted to many of H.M. Ships, thus increasing the aircraft carrying capacity of the fleet.

No mention of the development of the catapult would be complete without reference to H.M. Submarine " M.2," which carried a catapult and one small two-seater seaplane. The uses to which this aircraft could be put were necessarily limited by the smallness of the aircraft, but the practicability of carrying an aircraft in a submarine was proved, and should the necessity arise, there appears to be little doubt that the design could be repeated with success, thanks to the pioneer work of all those who went down with her in 1931.

Between 1926 and 1930, the training of the F.A.A. personnel made considerable progress. A course for Naval Observers was instituted at Lee-on-Solent, and this course is now carried out twice a year, each naval officer first spending eleven weeks at the Naval Signal School. A number of trained Observers also specialise in photography or meteorology—now important duties in a modern carrier.

Instead of training F.A.A. pilots at Flying Training Schools, an *ab initio* course was instituted at Leuchars where the course continues to be carried out and lasts for eleven months including initial deck landing training. The general procedure is for the naval officer to be given a similar training to that given to the R.A.F. officer, followed by preliminary deck landing training ashore. He is then given dual-control landings in a carrier before he is passed out from Leuchars and appointed to a carrier for completion of his deck landing training.

Finally, with the object of inculcating some knowledge of air matters and the employment of aircraft with the fleet in the rising generation of naval officers, a short course for junior officers lasting about three weeks is carried out in every carrier. This course was first started in 1927, and has proved of considerable value in enabling naval officers in general to have some knowledge of the principles of employment of air forces with a fleet at sea.

By 1928, it was clear that the Fleet Air Arm was a branch of the Service which offered naval officers other attractions than an increased amount of time ashore and extra pay. The cockpit of an aeroplane affords a very good place from which to view the movements of a fleet, and the naval officer who flies probably has greater opportunities of acquiring knowledge of handling a fleet than his brother officer in the spotting top or on the bridge.

As regards technical development, during 1928 slots and wheel brakes which afford a much greater degree of control on the deck were first introduced and the first all-metal aircraft made its appearance. The latter has many advantages, but there was one disadvantage which has caused designers of F.A.A. aircraft much trouble. It is essential that the crew should have a reasonable chance of being saved if they have to make a forced landing in the sea. The all-metal aircraft naturally sinks quickly, and arrangements for making it buoyant had to receive urgent and special consideration. Then there was the question of the parachute. A detachable type had been developed for observers but quick-release harness for the crew was required so that they could slip themselves from their parachutes and harness on arrival in the sea.

One of the most important developments from the operational point of view during this period was that of landing on the deck at night. The first successful night landing was made by Squadron Leader (now Group Captain) Howe in the " Furious " in 1927. During the ensuing years, considerable further progress was made which proved sufficient to show that deck landings at night are quite practicable, although some F.A.A. aircraft are at present more suited for this purpose than others. Future aircraft for the fleet will be designed for night flying,

and will thus be able to fly off from the carriers in the dark, and should they have to return to their carrier, at night, and be lucky enough to find her, a night deck landing would be quite practicable.

In 1929, the " Glorious " commissioned, making the third big carrier. A single-seater made several successful flights from the short deck of the cruiser " Caledon." In 1930, a definite policy to fit catapults to cruisers and capital ships was formulated, and the art of air navigation and methods of search had progressed sufficiently for aircraft to go as much as five or six times the distance ahead of the fleet regarded as safe in 1921.

RECENT PROGRESS.

During 1931, it became apparent that the importance of aircraft working with the fleet and the success achieved in their operation justified the appointment of an officer who would be responsible for all air operations with the fleet. Hitherto, and since the abandonment of the appointment of Admiral Commanding Aircraft held by Sir Richard Phillimore at the end of the War, the administration of carriers had been vested in a number of authorities; sometimes in the C.-in-C., sometimes in the Rear-Admiral commanding the battle cruisers, and sometimes in the senior officer-carriers. This chain of responsibility was hardly sufficient to maintain steady progress under the conditions of greatly increased capabilities of the Fleet Air Arm personnel and material and the growing proportion of aircraft and personnel in ships other than carriers. Also there was no one to co-ordinate the command and tactical control of the carriers themselves. The Admiralty therefore proposed the appointment of a Rear-Admiral Carriers who would control training and exercise at sea of the personnel and also be responsible for the development of material in the fleet and tactical air operations against ships. The Air Ministry readily acquiesced in the proposal, and a single authority responsible to the C.-in-C. for the control of air operations and development of fleet air work generally, within the limits of naval responsibility, was appointed. The first officer to be selected for this appointment was Rear-Admiral R. G. H. Henderson, and it is largely due to his active interest and ready co-operation with the A.O.C. Coastal Area, Air Marshal Clark-Hall, that the Fleet Air Arm has been really set on its legs and upon a basis which has proved acceptable to both the Navy and Air Force.

There have been many changes during the period these two officers have been in office, and I have only time to mention the more important. On the technical side, catapults are being installed in heavy ships and cruisers, and a form of arresting gear similar to that employed by the United States Naval Air Service and in many respects a direct development

of the original gear used in the "Furious" in 1917, has resulted in aircraft being operated more quickly and under conditions in which, formerly, it would have been impossible for pilots always to land successfully. The most important effect is perhaps that a very much reduced landing speed is now needed for landing on, and carriers will not be so liable to get separated from the fleet. The special requirements of the fleet in regard to aircraft and their equipment have been collected and collated with the result that the Admiralty have been able to crystallize their requirements, and the Air Ministry have been able to design and provide the aircraft and equipment. How well they have done this may be judged from the fact that in the course of fifteen years the Fleet Air Arm has received sixteen new types of aeroplanes, and for each of these types it may be assumed that at least two and probably three were built and tested.

I may, perhaps, be permitted to digress for a moment in order to describe how aircraft are provided for the Fleet Air Arm. Suggestions are made through the C's-in-C. to the Admiralty where they receive the consideration of the Naval Air Division, a branch of the Naval Staff concerned solely with the Fleet Air Arm; they are then communicated to the Air Ministry who give their opinion and endeavour to meet the requirements. To avoid long discussion of details in letters, there are two committees, one at the Admiralty, and one at the Air Ministry; the former deals with all aviation arrangements in H.M. Ships, the latter deals with the aircraft and their equipment. Both Admiralty and Air Ministry representatives serve on these Committees which are thus able to consider the problems from every point of view and recommend the best means of meeting the particular requirement. It is under the auspices of these committees that any new aircraft or equipment are provided by the Air Ministry for the Admiralty, and it is by this means assured that both Services fully appreciate the advantages and disadvantages of each proposal and, when compromise is necessary, the best possible compromise is arrived at.

A second change which has taken place is in organization. With the growth of the Fleet Air Arm, the introduction of carriers embarking as many as fifty aeroplanes, and the existence of catapults in ships, it was difficult for the flying and training to be co-ordinated, particularly in the big carrier. The 'flight of six' organization certainly had the advantage of flexibility, but it was less convenient in many other ways; so in 1933 it was decided to reorganize upon a squadron basis. It is not necessary to go into any details, but it may be noted that this is a reversion to the system which was abandoned during the War because of the need for flexibility. The increased number of carriers and aeroplanes available, and the need for collective operation have, however, altered conditions

compared with those in 1918. There is also the advantage that naval officers attached to the Fleet Air Arm and who have seen considerable flying service, have better prospects of holding the higher appointments. Naval officers who specialise in flying are now regarded as specialists in the same sense as other naval specialists, and have a good chance of holding the higher appointments in the Fleet Air Arm, since, whereas R.A.F. officers will continue to hold the appointments of air advisers to the C's-in-C., the senior appointments in carriers and flagships of squadrons of ships carrying aeroplanes on catapults, will in future be open to attached naval officers.

To-day the pilot in the Fleet Air Arm carries out approximately the same amount of flying as a pilot ashore, whereas in 1926 their average was about half that of those ashore, and the number of successful landings on board a carrier under every condition of weather is comparable with those made at aerodromes. In war, where certain risks which may not be justifiable in peace are cheerfully taken, aeroplanes will be able to operate in any weather in which operations are practicable for surface craft.

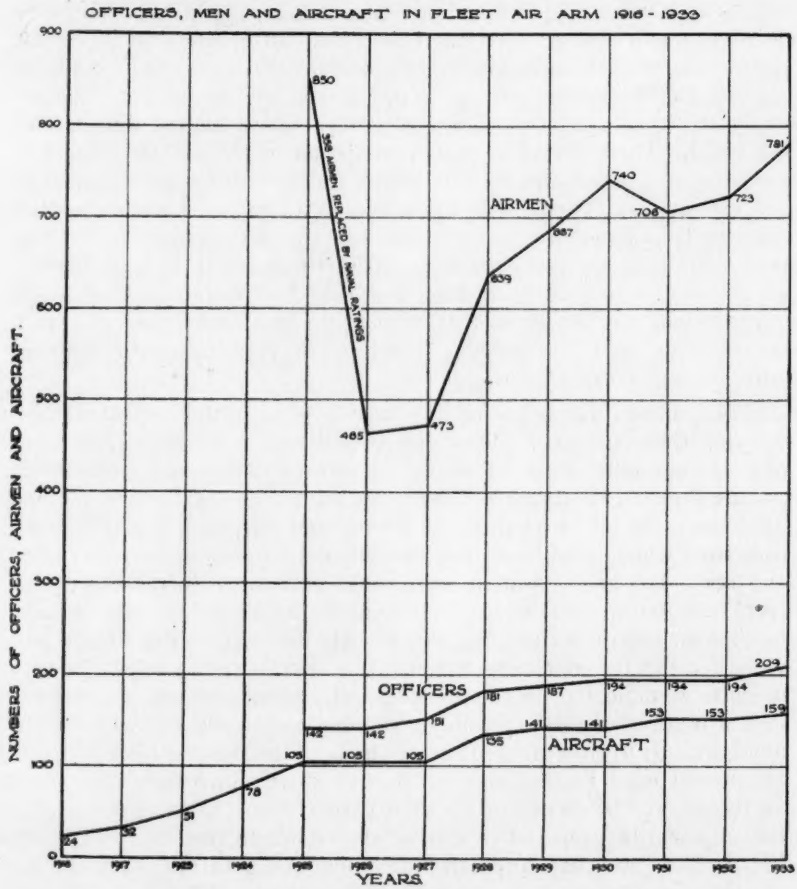
The performance of carrier aeroplanes, no longer hampered by fittings peculiar to deck landing, is comparable with that of their counterparts working from land aerodromes, and the organization and co-operation between all concerned is such that the best possible use may be made of experience gained and the effective employment of aircraft with the fleet is under continual consideration. All this progress has only been made possible by the system which enables the very wide knowledge of flying available at the Air Ministry to be applied to the peculiar needs of the Fleet Air Arm, and there developed by the naval personnel with most experience of the work.

There are to-day five carriers, and twenty-three ships fitted with catapults. Periodically, the carriers now operate as a squadron, and again I must add that this development and the necessary drill for flying off and on was inaugurated during the time Admiral Henderson flew his flag in the " Courageous."

The accompanying diagram illustrates how the total strength of the Fleet Air Arm in aeroplanes, officers and airmen has grown since 1917.[1] The present strength is 159 aeroplanes, 209 officers and 781 airmen, exclusive of naval ratings. The graph is not quite accurate in that details for the years 1918–1922 are omitted; the only figures available were those for December, 1918, which gave no less than 388 aircraft, 340 officers and 1,552 airmen. When I analysed the figures for aircraft, however, I found that only 54 were embarked in carriers and 45 in ships

[1] See also Appendix at the end of this Lecture.

other than carriers; of the remainder no less than 211 were under repair and 77 were held as reserves ashore; 30 of these reserves were experimental. The number of aircraft under repair is an indication of the difficulties encountered in operating aircraft from carriers of those days or the lack of skill of the pilots. As one of those pilots, I prefer to attribute this large number of casualties to the former cause.



THE FUTURE.

Statements suggesting that aircraft have tolled the knell of departing ships were made in the Press after the combined exercises carried out last autumn. I propose, therefore, to conclude with a few remarks as to the future.

I cannot express any definite opinion upon the growth or decline in strength of the Fleet Air Arm as it is to-day, since so much must depend upon the trend of international agreements in regard to armaments. I think, however, that it can be no exaggeration to say that the aeroplane is now as essential a weapon to navies as the big gun, and that a navy will always need to have some aircraft. Any fleet deprived of aircraft will be at a very great and serious disadvantage which may well prove decisive, for in aircraft they have the means of finding and fixing the enemy. It seems to me beyond the immediate development of aeroplanes and engine design to produce types which will be able to operate efficiently from shore bases, except within certain limited distances of the coast. These distances may perhaps be in the neighbourhood of 150 miles at present and may increase with the further development of accurate air navigation. The flying boat is a type most suited for long distance reconnaissance over the sea, but the development of a flying boat with sufficient sea keeping qualities to enable it to keep the sea with a fleet, under all conditions in which destroyers can now do so, is a very long way off; it is, so far as our present knowledge is concerned, not even in sight. It follows, therefore, that aircraft with the fleet must be ship borne.

The problem which has to be solved is what is the best method of carrying these aircraft? There are two alternatives: firstly, to carry them in specially designed ships—aircraft carriers; and secondly to confine them to the fighting ships. The advantages of the first method lie in the provision of what, to all intents and purposes, is a mobile air base from which aeroplanes may operate under most conditions of wind and sea. The great disadvantage is the extreme vulnerability of the carrier to sea and air attack. As regards the second method, we are faced with several serious difficulties. The security of the ship is provided for, but the conditions for operating aircraft seem likely to be very much more difficult. In the first place, the aeroplanes will be scattered over a number of ships, possibly some distance apart. It will thus be more difficult to co-ordinate the operations of the striking force. Again, all aircraft must be seaplanes, so that on their return they may alight on the sea and be picked up by their parent ship. Even assuming that the ship will be prepared to stop or slow down to recover her aircraft, it is well known that landplanes can alight on a carrier when the sea conditions will prevent the operation of seaplanes. Thus an additional limitation in the operation of aircraft with the fleet is introduced. Finally, would not the possibility of damage by blast from the ships' guns, and the increased risk of fire due to the presence of a hundred gallons of petrol necessitate flying off every aeroplane before the ships go into action?

If these arguments are accepted, it follows that by confining aircraft to ships other than carriers, they might well be limited to one flight only, and further, the C.-in-C. might have to operate them at a time quite inconvenient to his plans. Our experience is at present limited, and it is for this reason that the present policy is to resort to both methods, so that the relative advantages and disadvantages of each method may be fully explored. Personally, I think that the carrier will remain the principal means of carrying aircraft with the fleet. The system of carrying them in ships other than carriers will be the means of embarking more aircraft than can be accommodated in such carriers as we can afford, and which are, in any case, limited in size and numbers by international treaty. Carriers, like the poor, will, I believe, always be with us, and their extreme vulnerability will necessitate their finding security in evasive tactics. That they will be a serious anxiety to the C.-in-C. seems inevitable, but this anxiety will arise mainly from the fact that this new weapon is of such great value to modern naval warfare. In every stage of life the more valuable the object the more complete and well thought out must be the measures to preserve them, in fact the higher the insurance premium. Thus, in modern naval warfare we have seen the capital ship more confined to harbours than in the days of sail. This, of course, is partly due to the necessity for fuel economy or to strategical requirements; but when they go to sea, they are surrounded by destroyers as a protection against submarine attack. So with carriers; in return for the advantage of having aircraft continually available in almost every degree of wind and sea, we shall have to face providing special measures for their security.

DISCUSSION.

Airships for Convoy and Anti-Submarine Work.

Admiral Sir Sydney Fremantle: The Lecturer has dealt with the use of aircraft with the fleet at sea, but there are very many other duties of the Fleet Air Arm besides that and, as far as one can judge at the present time, its employment in a fleet action is about the most unlikely of the duties which it may have to perform.

In any war in which we are ever likely to be engaged, convoys will be a very important feature, and their protection will be a very important naval duty. In the Great War many of our convoys which were outside the range of enemy aircraft were most effectively protected by airships. I can see now the big Scandinavian convoy which used to leave England every four days with any number of ships from forty to sixty, going up the East Coast of England protected by three or four "North Sea" airships—and most effectively protected: that could not be done by aeroplanes at all. Again, the anti-submarine patrol of our coasts, or such part of our coasts as were out of range of enemy aircraft, was effectively done by the little "S.S." airships.

I should be very interested to know whether airship development must be regarded as entirely dead or whether we have got a nucleus arrangement of some kind whereby we could manufacture airships and train their personnel in a short period, because to my mind they are a most valuable part of the duties of the Royal Air Force in co-operation with the Navy.

The Lecturer alluded to various methods of carrying aeroplanes in carriers and in fighting men-of-war. Whatever may be said about battleships, I should be extremely sorry if cruisers could not have their own aircraft with a catapult. Their duties are many and varied, and they are carried out much more often than not singly; it is essential, therefore, that they should be self-dependent as regards air assistance.

SQUADRON-LEADER GODDARD: Although airships may eventually again work with the fleet, I think the protection of commerce is not now a primary duty of the Fleet Air Arm. If small airships are ever required again it will not be difficult to provide them. I invite the Lecturer to remark upon the experience the Americans have had in recent years in the use of rigid airships as aeroplane carriers in company with the fleet.

THE INITIATION OF FLEET AIR WORK.

CAPTAIN E. ALTHAM, R.N.: The object of the Council in inviting Wing-Commander Acland to give this lecture has been to secure an authoritative record of the building up of the Fleet Air Arm, because it is such a very important development in the two Services. Hitherto its history has been scattered amongst various Naval and Air Force official histories and other publications; now, thanks to the Lecturer, we shall have it in a concrete and available form.

There is one item in that history which, perhaps, I may be permitted to fill in. After our very early experience on the Belgian Coast in 1914, it became obvious that something in the nature of air observation for ships, and particularly for their gunfire, was absolutely imperative. It fell to my lot in May, 1915, to be constituted by the Admiralty a committee of one to investigate the most suitable means of aerial observation for bombardment and fleet actions; to report on the most suitable types of aircraft for this work; to report on the necessary wireless and other equipment; and on the selection and training of personnel.

Those were fairly comprehensive terms of reference for a committee of one; but the first thing to do seemed to me to be to sample aircraft of every available type, and find out whether one could see to observe out of them better than from the control top of a ship. I tried them all—the old airship "Alpha," the "Coastal" and "S.S." types, a kite balloon, and a variety of heavier-than-air aircraft, and reported on those which seemed promising for naval work.

THE FIRST SCHOOL FOR NAVAL OBSERVERS.

The next stage was to start training Observers. First of all we carried out some very elementary practice with the old battleship "Revenge," and a landplane, but eventually I started the very first Naval Observers' School at Calshot. Permission was given by the War Office to fire reduced charges from the antiquated 4-inch guns in the old fort on Calshot Point, and we used Sopwith seaplanes to exercise spotting and reporting fall of shot to the shore station. Here the results were plotted and the Observers compared their estimates.

The Navy is often accused of having been backward in taking up air work; but the fact is that in 1915 the first problem was to secure aircraft which could

carry an Observer together with the necessary wireless equipment—both transmitting and receiving gear—and there were very few types in those days which could do this and which could also carry sufficient petrol to give them enough endurance to enable them to work with ships in action.

As regards the selection of Observers; at the outset we had only four officers; quite the best was a R.N.V.R. officer with the sea experience he had gained from five years in the training ship "Port Jackson"; but before he came to Calshot he had been compelled to give up sea life on account of defective eyesight! That was the beginning of the now numerous and highly-trained Observer branch of the Navy.

THE LECTURER:

THE LECTURER, in reply, said: Admiral Fremantle has enquired whether airships cannot be of considerable value in naval warfare, particularly in connection with such duties as convoy work and anti-submarine patrols. I think that it is possible that small airships will come back. I know very little about them, except that they make you very seasick. The airship has, of course, an advantage in that she can stop her engines and drift if the wind is favourable. At the time they were used for anti-submarine work their endurance was about 10 hours, as compared with the available aeroplanes 4½ to 5 hours; but this particular advantage has almost entirely disappeared now that we have flying boats able to stay up for over 10 hours. Although I am not acquainted with the cost of an airship, the initial cost and upkeep are, I believe, considerably more than that of an aeroplane. The aeroplane also has the important advantage that it can attack a submarine, once sighted, very much more quickly than an airship can. The difference in time required is sufficient to increase greatly the chances of the submarine getting away.

Although we are doing no practical work with airships at present, there is a small section at the Air Ministry which watches all airship development in other countries. I cannot help feeling that this is the correct policy. In these days when economy is essential and the airship remains more vulnerable than the aeroplane, it may perhaps be a case of wise men profiting by the experience of others.

Squadron-Leader Goddard also enquired about the carrier-airship. I am afraid I do not know accurate details, but to the best of my knowledge the American "Macon" carries about seven aeroplanes and many successful trials have been made of the method of hooking on to a trapeze slung beneath the envelope of the airship.[1] This development is not entirely American, as I believe that it was in 1918 that R.N.A.S. pilots carried out experimental work of this nature, being launched from and returning to a British airship. I can see no difficulty in repeating these landings with our highly trained pilots and more controllable aircraft. The carrier-airship produces one difficult problem. A very large proportion of the available lift will have to be devoted to fuel load if the airship is to have sufficient fuel to keep with the fleet for four or five days. This difficulty may be

[1] For details of "Macon's" aeroplanes, etc., see Airship Notes, p. 439.—EDITOR.

solved by the perfection of the heavy oil engine for aircraft, a type which is still experimental[1].

Captain Altham very kindly added to my historical account of the development of fleet flying by referring to the earliest training of Observers. He mentioned that one of the reasons why observing did not progress quite as fast as they hoped was the combined weight of the wireless and Observer. I do not think that difficulty only applies to the early days. Not so very long ago I received a minute to this effect: "I hear that there is an Observer in the Fleet Air Arm who weighs 17 stone. This is a very great weight. Come and see me about it." The difficulties of weight-carrying are still with us!

THE CHAIRMAN:

We have had a full, interesting and instructive historical record of the Fleet Air Arm. The Lecturer, very properly, has not mentioned names; but I particularly wish to mention two names. The Naval Air Arm owes a very deep debt to the late R. M. Groves. He came up to Rosyth as my guest, and threw himself heart and soul into everything, and he was responsible for the first flight from the "Yarmouth."

The other name is that of Air Marshal Clark-Hall, still, I am glad to say, with us. He did a tremendous amount of work in his quiet, determined manner.

We owe a deep debt to those two officers, and I am sure I shall be expressing your wishes if I thank the Lecturer very much indeed for the extraordinarily interesting lecture that we have had this afternoon. (Hear, hear).

ADMIRAL SIR SYDNEY FREMANTLE: Before I undertake the very pleasant duty of proposing a vote of thanks to the Chairman, I should like to recall one little operation of the War which might possibly do something to modify what I cannot help calling the somewhat contemptuous attitude of the Air Force of the present day to lighter-than-air craft. I was in command of the Aegean at the most critical time of the War—the last half of 1917, and I had to do whatever was possible, with very small resources, to protect the line of communications for the army in Salonika. The Gulf of Salonika is in the form of an isosceles triangle, with sides of about a hundred miles and a base of about eighty miles. I had two "S.S." airships stationed at the base of this triangle, with an Air Force detachment of seventy men. One of those airships was up during the whole period of daylight every day, except one, during the six months I was in that command; and not one single submarine attacked the ships inside that triangle. I think that instance shows the value of small airships.

The customary votes of thanks to the Lecturer and Chairman were carried by acclamation.

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[1] The use of airships for naval work was also dealt with in the lecture on "The Value of Aircraft for Protecting Sea-borne Trade," by Air Commodore E. D. M. Robertson, D.F.C., R.A.F., and in the Discussion which followed—JOURNAL for August, 1933.—EDITOR.

APPENDIX.

TYPES AND PERFORMANCE OF AIRCRAFT WITH THE FLEET, 1918–1933

	Single-Seater Fighters	*H.P.*	*Top Speed*	*Endurance*
1918	Camel	130	117 at 10,000 ft.	2¼ hrs.
1923	Flycatcher	410	130 at ,,	2¼ hrs.
1931	*Nimrod*	556	190 at ,,	1½ hrs. at 174 m.p.h. 4¼ hrs. at 107 m.p.h.
	Two-Seater Fighter			
1931	*Osprey*	589	173 at 10,000 ft.	2½ hrs. at 152 m.p.h. 4½ hrs. at 102 m.p.h.
	Spotting and/or Reconnaissance.			
1918	Sopwith (Two-Str.)	125	96.5 at 10,000 ft.	3½ hrs.
1919	Panther	230	103 at ,,	4¼ hrs.
1919	Walrus	470	112 at ,,	3 hrs.
1923	Bison	470	97 at ,,	3¼ hrs.
1923	Blackburn	470	119 at ,,	3½ hrs.
1924	Fairey 3D	470	119 at ,,	3 hrs.
1929	*Fairey 3F* ..	534	128 at ,,	4½ hrs.
1933	*Seal*	588	138 at 8,000 ft.	3.67 hrs.
	Torpedo Bomber			
1918	Cuckoo	202	93	4¼ hrs.
1922	Dart	470	103 at 6,500 ft.	2½ hrs.
1928	*Ripon I* (Two-Str.) .	470	107 at 5,000 ft.	2.7 hrs. (Tankage for 5 hrs.)
1931	*Ripon II* (Two-Str.)	560	115	2.7 hrs. (,, ,,

Notes :—

1. Those types in italics now in service.
2. Speeds and endurance approximate only.
3. In fifteen years there have been four different fighters (including the two-seater), eight different spotter-reconnaissance, and four different torpedo-bombers. An average of one new type a year.

WEAPONS OR WAR

By Brevet Lieutenant-Colonel E. E. Calthrop, M.C., *p.s.c.*

THE interest which has been focussed on the disarmament discussions during recent years has given rise to a widespread belief that armaments are, in themselves, the primary cause of war; and that, as a corollary, it is only necessary to abolish armaments, or to reduce them to a minute fraction of their present quantities, to render war impossible.

The very considerable volume of pacifist literature which has appeared of late is generally based on this fundamental fallacy. It is not intended, in this article, to decry in any way the efforts that are being made to prevent war and to promote the peaceful settlement of international disputes: in the present world economic situation such efforts are obviously called for; but, if the desired results are to be obtained, they must be founded on logical realities, not on unrealities. Many pacifist writers concentrate their attacks upon the symptoms and make little or no attempt to find out what are the real causes of war. Armaments are the means of waging war, not the cause of war, and throughout the course of history no war has ever been started solely because one or the other side possessed certain armaments. It will at once be objected that the size of the German army at the beginning of this century undoubtedly contributed to the outbreak of hostilities in 1914; but the blame must be laid not so much on the army as on the directors of German policy, who had increased it to such a size and imbued it with the idea that war was inevitable. Armaments have existed in the past, and exist now, only to support the policy of their owners.

To prove the truth of this thesis, investigation is necessary of the factors that have tended to produce, limit or prevent war in the past. This has been done in two recently published works: "The Science of Peace," by Lord Raglan (Methuen), and "Can We Limit War," by Hoffman Nickerson (Arrowsmith), which are to a considerable extent complementary.

"The Science of Peace."

Lord Raglan introduces his subject with the apt question "What is war?" War, according to the dictionary, is open hostility between

nations, but this is obviously inadequate. The Civil War of 1642 and the American Civil War were undoubtedly wars in every sense of the word. He accordingly adopts the definition of " more or less prolonged hostilities, accompanied by bloodshed, between two organized groups." He then goes on to show that wars have taken place throughout the course of history, irrespective of the existence of standing armies or not. It does not appear that any of the ancient empires of the East—Egypt, Assyria, Babylon or Persia, had standing armies, and yet they were constantly engaged in warlike operations. Neither Greece nor the Roman Republic had regular forces, and it was not until Augustus became the first permanent head of the Roman State that a standing army was formed. From the fall of the Roman Empire there were no regular forces in Europe, apart from bands of mercenaries which cannot be classified as such, for nearly twelve hundred years; that is until the XVIIth century.

Lord Raglan comes to the conclusion that not only do armaments not cause war, but that there is one type of war which they can almost invariably prevent, and that is civil war. He then points out that the whole of our present-day civilization rests on a basis of force. Law and order can only be maintained, in the existing state of society, by force; and that must be provided by police and soldiers, between whom no real dividing line can be drawn.

The origin and development of war in its earliest stages are then dealt with. The author considers that the idea of the natural pugnacity of man is unsupported by evidence, and that, moreover, early man was not by nature a warrior. The earliest object of war was probably to obtain victims for religious sacrifices, which developed into raids for securing slaves. This in turn led to two other forms of warfare: wars of subjugation to reduce the inhabitants of an area to slavery; and wars of empire, by which one ruler occupied the country of another without any very material change of status of the inhabitants. Wars of the latter type could only be justified by results, and good results could only occur when the conqueror was more civilized than the conquered and when the result of the conquest was to bring peace to an area previously in a state of unrest. Few wars have taken place in Europe, since Roman times, for which these conditions could be claimed. But, from the time when the Roman Empire was destroyed until the time of the French Revolution, wars in Europe, other than those of religion, gradually became more and more humane. As the result of the French Revolution, however, Europe became militarized. Nationalism became the great moving force, and with it came conscription and the idea of the nation in arms.

Nationalism, according to Lord Raglan, with its concomitants, maldistribution of population and trade rivalry, is the sole cause of modern

war, and what the word "nation" really signifies is a community organized for war. War-mindedness is a bye-product of nationalism, though how far it is a direct cause of war is not easy to say. While it is probably never a primary cause, yet governments may be encouraged to threaten war by the knowledge that they have a war-minded population behind them. The final section of the book is devoted to a study of the conditions of world peace, in which are included the demilitarization of religion, education for peace, the adoption of a universal language, and the promotion of the idea of world civilization on western lines, of universal ideas of law and justice, and of peace-mindedness.

"Can We Limit War."

Mr. Nickerson approaches the problem with a different outlook. War—the use of organized force between human groups—is, he considers, inevitable because men are imperfect, because any social order demands armed police power and because any individual or group determined to attack another can be restrained only by force. There are many people, too, who not only do not look upon war as an unmixed evil, but insist that a certain amount of it is a positive good. To believe in the possibility of abolishing war altogether is therefore folly, but what can be done is to make efforts to avoid or reduce causes for conflicts, to persuade people to peacable courses and, if these fail, to make efforts to limit war. The degree of limitation in war, he argues, has nothing to do with the deadliness and destructive power of weapons, but is a moral question. What matters is, firstly, the will to fight; secondly, the extent to which the community is involved in the struggle; and, thirdly, the amount of damage which is inflicted before a decision is reached.

The author then analyses the history of war and shows that wars have always run in cycles between a strictly limited form and one which might be called unlimited, rising towards the war of complete extermination, then falling back toward a minimum of mere police work. The first known cycle, that of the Graeco-Roman world, began with the failure of the Greeks to limit war strictly, and continued with a similar failure on the part of the Roman Republic. The Roman Empire, however, succeeded in limiting it more strictly than any society before or since. The Christian cycle of war began with the breakdown of the technical limitation within which the Roman Empire had confined war, and its replacement by a new technical limitation; the mediæval, founded upon a new moral unity furnished by the Church. In the Middle Ages wars were limited politically and technically by the nature of feudal obligations. This limitation began to break down in the Hundred Years Wars, and war approaching that of extermination returned to Christendom when the religious movement known as the Reformation destroyed the moral

unity of Europe. For more than a hundred years, until the end of the Thirty Years War in 1648, there was a cycle of savage and destructive religious wars. From then on, until 1793, war was again successfully limited. Governments made war not with a view to overwhelming their enemies, but merely to exert pressure for the sake of limited political objectives. Defeated states had seldom to fear disaster: at worst they might expect a supportable diminution of wealth and power. 1793 heralded the approach of the disastrous cycle of democratic wars upon which the world appears to be still engaged—and during the last century and a half there has been a steady increase in the scale and destruction of war. This, the author claims, is due not to the increasing destructive power of weapons but to the fanaticising of national patriotism and its co-product of democracy, the universal service conscript army.

The democratic ideas of the French Revolution did not invent nationalism—it had already existed in England and France for over three centuries—but it evoked it elsewhere and intensified it to such an extent that nationalism soon commanded a wider allegiance than the democratic theory itself.

Napoleonic war was unlimited war. Napoleon aimed always at the total overthrow of the hostile country. The Napoleonic formula remains. War is still considered only in terms of the total defeat of the enemy country, the conscript mass, and the quick decision. The problem of disarmament is, therefore, that of limiting Napoleonic war.

This writer, after dealing with the question of the "frightfulness" of the next war, over which he disagrees with the scaremongers, then proceeds to discuss the relation of armaments to war. Armaments, he argues, exist only for the sake of some policy. No human group would arm except for freedom to control its own affairs or to influence those of its neighbours, and armaments in excess of the needs of national security are danger signals only because they indicate either muddle-headedness or aggressive intentions. The argument that armaments in themselves cause war is itself an almost perfect example of muddle-headed thinking. On the contrary, the new weapons, tanks and aeroplanes, will make for limited war by destroying the military value of the instruments, in the shape of conscript armies, with which the imperfectly limited wars of the democratic era have been waged. The expense of these weapons, and the demands for labour to produce them, will not only make future armies smaller, but they will also mean either shorter or much less destructive wars.

Every peace, he concludes, must be one of exhaustion or one of order. If of exhaustion, it is only a question of time before it comes to an end. The peace of order requires, in view of human nature, force

to implement it; but physical order depends in time on an intellectual and moral order whose instrument is persuasion, and that must depend on religion in its finest and widest sense.

Disarmament.

It will be seen from these brief summaries that the two authors, though working along somewhat different routes, are unanimous in their main conclusions. Both insist that the maintenance of civilization must depend on force, but reject the idea that armaments are the cause of war. Both lay the blame for existing war tendencies on the present intensified form of nationalism which governs the policies of all countries great and small, and both reach the conclusion that the prevention or limitation of war and the establishment of peace is a moral and not a material problem. If their findings are to be accepted the question then arises as to whether the nations of the world are now working on the right lines in their efforts to achieve disarmament? In answering this it is necessary to be quite clear on one point, which is generally overlooked or disregarded by pacifist writers, and that is the fundamental fact that the world is not yet perfect. Its destinies are governed by human beings with all the failings of human beings. Nationalism is the guiding principle on which their policies are based, and those policies must automatically be primarily selfish. Complete mutual trust between nations cannot yet be expected. Trust is a plant of slow growth, and the attempts that have been made since 1919 to instil an international outlook have defeated their own end by forcing the pace too much. No nation is going to accept any measure which will give it a feeling of insecurity. On the other hand, a feeling of security can only be obtained when a nation is convinced that it is equipped in such a way as to be able to deal with any situation that may arise. Such situations may be classified, broadly speaking, under three heads:—

(*a*) Internal disorder beyond the power of existing police forces to deal with;

(*b*) The defence of frontiers against neighbours with whom no permanent agreement can be made, such as the tribes on the N.W. Frontier of India; and

(*c*) The rupture of agreements by another nation which threatens the national existence or honour.

The strengths of the forces required to deal with the first two situations can be calculated with a very considerable degree of accuracy; but that for the third is incalculable, as it embraces a consideration of all the factors that tend to produce war—moral, political, economic and technical. It is, however, with only one of these factors, the technical, that disarmament is concerned.

There are three possibilities :—

(*a*) Total disarmament ;
(*b*) Partial disarmament ;
(*c*) Unrestricted armament ;

and these will be considered in turn.

Total Disarmament.

While weapons have never, it is claimed, been the cause of war, yet the opposite is also true : the lack of weapons has never acted as a deterrent. Most revolutionary movements have started with at least an inadequate supply of them, and the American Civil War can be quoted as an example of almost unlimited warfare between two practically unarmed groups ; in fact it would not be overstating the case to doubt whether the American Civil War could have ever taken place if the Government had been adequately equipped. The possession of weapons may, therefore, definitely act as a deterrent.

In the present circumstances total disarmament cannot be regarded as coming into the sphere of practical politics : it is a state of affairs which could only materialize in a more perfect world where every nation was prepared to put implicit trust in international undertakings.

Partial Disarmament.

It is the accepted custom to consider the problem of partial disarmament under two heads, qualitative and quantitative disarmament.

The underlying idea of qualitative disarmament is so to weaken the powers of the offensive and strengthen those of the defensive as to make it impossible for an aggressor to attack with any hope of real success. On the face of it this looks a reasonable suggestion, but on closer inspection doubts as to the logical reality of the idea must arise. Attempts, for instance, have been made to divide weapons into two classes, offensive and defensive, with a view to prohibiting the former ; but, quite apart from the arguments raised by various representatives at Geneva to prove that the chief weapons of their particular countries are purely defensive, any such distinction must be purely artificial as the employment of a weapon depends on circumstances.

The heavier natures of artillery have been called offensive, owing to their destructive powers against permanent or semi-permanent fortifications, but they are also the best weapons for counter-battery work which may be a defensive as well as an offensive task. On the other hand, one of the chief reasons for the French offensive policy of battle in 1914 was that the 75 mm. field gun made it technically possible. The fact that the smaller the calibre the greater the number of guns and

shells that can be manufactured, the greater the speed of manufacture, and the cheaper and easier maintenance is in the field, does not appear to be taken into consideration. It would seem to be as logical to prohibit all artillery under, say, 8-inch. Gas, again, is prohibited; yet gas is the most powerful defensive weapon known; mustard gas used in large quantities must bring any advance to a halt. Looking at it from a wider point of view, limitation or prohibition of any particular weapons will merely act as a spur to human ingenuity to find other weapons of greater destructive power within the limits laid down. The German pocket-battleship is a case in point.

The fundamental idea of limiting the power of the offensive arose from the presumption that whichever side acted on the offensive at the outset of war would be the aggressor.[1] This need by no means be the case, but even if it is, the principle still holds good that offence is the best means of defence, and a nation attacked will at times be best able to defend itself by a counter-offensive. A purely defensive attitude must in the end mean defeat, and a nation which relies upon an immobile defence only, such as the French eastern frontier defences, would be merely playing into the hands of the aggressor. Immobile defence means dispersion and the attacker is enabled, by virtue of having the initiative, to concentrate in superior numbers at any selected point. For the same reason, any limitations as to mobility of weapons, by insistence on fixed mountings, merely assists the aggressor as it prevents the defender concentrating at any threatened spot.

Quantitative disarmament seems equally to have its limitations. In deciding on peace or war it is the relative sizes of the forces that count, not the absolute sizes. Mutual reduction between two countries will really leave them relatively no better off as far as war is concerned. The real crux of the problem, however, would appear to be not the actual numbers of men or weapons allowed any particular nation, that is to say the checkable strength, but the potentiality of that nation as a whole for war as regards man-power and industrial expansion, which is imponderable. Other factors too must be taken into account: national responsibilities in the shape of overseas commitments, internal security problems, and the relative vulnerability of vital industrial areas, not to mention that most difficult factor of all to compute—individual psychology. Quantitative disarmament like total disarmament would appear to favour any nation whose man-power and industry are most "in hand."

[1] See "Definition of Aggression" in the JOURNAL for August, 1933, p. 623-4. —EDITOR.

Unrestricted Armament.

From what has already been said, the tendency might be to draw a conclusion that it is both impracticable and useless to attempt to restrict armaments. At the beginning of this article it was stated that although the great size of the German army contributed to the outbreak of hostilities in 1914, the real blame must be laid not on the army but on the directors of German policy. This statement now requires qualification. It is true that the directors of German policy created that army and imbued it with the idea of the inevitability of war; but they went further than that—they allowed the army to get out of their control to such an extent that the military chiefs in the end dictated policy to them. Much the same thing recently occurred in Japan, and it is almost axiomatic that when large armies come into existence their tendency is to become aggressive and increase the war-mindedness of the nation, with the result that a sabre-rattling policy is forced upon the politicians. War is then more likely to ensue than if the army had not been quite so powerful.

Apart from this, the economic aspect must be taken into consideration. The standard of living is getting higher every day, and the cost of upkeep of a soldier must keep pace. Weapons, with their increasing complexity, are more expensive. In existing world conditions the upkeep of large armed forces is a definite handicap to economic prosperity; all the more so as unrestricted armaments must lead in the end to an armament race, which in time will tend towards war, not because the armaments are in existence but because, sooner or later, one nation or another will see itself being outstripped and will fear for its security.

Conclusion.

The essential points which it is desired to emphasize can now be summarized. Not only is it considered that armaments are not in themselves a primary cause of war, but the reverse is true. The possession of adequate armaments may act as a definite deterrent, particularly in cases of civil war, whether promoted from within or without. To abolish armaments would neither prevent war, nor would it even limit war; rather would it tend to give an unfair advantage to any state which had a firm hold over its population and industry. Unrestricted armaments, on the other hand, incline to become an intolerable burden economically, lead in the course of time to an armament race, and by their deadweight force war-mindedness on peoples and politicians. Partial disarmament, in the nature of things, cannot be impartial. Quantitative disarmament benefits the strong industrial state and handicaps the weak agricultural state. Qualitative disarmament is to the

advantage of the aggressor, who has the initiative and can make secret plans and preparations, and to the disadvantage of the state attacked.

What then is the answer? It is suggested that so long as nationalism remains the main motive force of policy, each nation must have sufficient armaments to ensure, in its own estimation, its security both internal and external. Every nation has a natural armament level, dependent on its commitments, its population and its economic resources, just as every well has its natural water level. That level a nation must decide upon for itself. It cannot be decided for it by other nations without creating dangerous resentment. The trend of all disarmament conferences in the past has been to try to force nations to disarm below that level, with the inevitable reaction of inducing a feeling of insecurity. If each nation was allowed to arm to its recognized true level, it would have no fears for its safety and would, in the course of time, reach a state of mind favourable for the consideration of mutual limitations of armaments in the interests of economy.

A conference of nations all imbued with a feeling of security might change the present efforts, based as they are largely on mistrust, from attempts to force unwilling disarmament on others to voluntary offers, based on trust, to submit to a partial reduction of armaments in order to improve general world conditions. It is true that this is a compromise, but it is a compromise which is more likely to appeal to all in a civilization whose main interest must be, in existing circumstances, to ensure a return of world confidence.

Disarmament is a moral not a material question, and, as Mr. Garvin said in *The Observer*, "it is futile to consider the disarmament of hands before that of minds."

AIR FORCES IN THE GREAT WAR

SOME STRATEGICAL LESSONS

By MAJOR OLIVER STEWART, M.C., A.F.C.

THERE is a special value in the fourth volume of "The War in the Air"—the history which is based on official documents and issued by direction of the Historical Section of the Committee of Imperial Defence,[1] because it treats of that period wherein air action attained its maximum intensity and because it deals with operations which have a bearing upon present-day discussions on the scope of an air force in time of war and, in particular, on the effectiveness of strategical bombing. So far as the Western Front is concerned, this volume covers the period extending from the middle of 1917 to April, 1918; but it also covers the naval air developments and operations in home waters throughout 1917 and for the first quarter of 1918. It therefore includes a narrative of the anti-submarine work performed by aircraft during the period of unrestricted U-boat warfare, and of the diverse operations undertaken by naval aircraft based at or near Dunkirk.

If the volume is regarded as a whole, and if it is sought to arrive at some general conclusion as to the competency with which the effort of the British air forces was directed during this period, it is impossible not to agree that there are good grounds for the criticism of those who accuse the British higher command in those days of failure to understand wherein lies the chief source of air power. Throughout the book instances are multiplied wherein our aeroplanes and our pilots were sacrificed in large numbers with no very definite object in view except, perhaps, a sort of academic "ascendancy." Particularly noticeable is the manner in which the German air force was used at the time of the battle of Cambrai. At the outset the 3rd Brigade possessed a total of 289 aeroplanes, whereas the whole German Second Army, whose right flank only was in the Cambrai sector, could count upon no more than 78 aeroplanes, of which 12 were fighters. Thus at the opening of the battle the 3rd Brigade alone outnumbered the opposing enemy air force, generally, by about four to one and, in fighting aircraft, by ten to one.

[1] "The War in the Air," Vol IV. By H. A. Jones (Clarendon Press, Oxford). 17s. 6d.

Low-flying attacks were used extensively; but the German air service soon summed up the situation, and the Richthofen "Circus" was brought to the scene of operations to perform counter-offensive duties.

"The German air service," writes Mr. H. A. Jones, "deserves full credit for the rapidity with which its concentration was made once the danger had been revealed, for the clarity of vision which enabled the command to judge the essentials of the situation, and for the vigour and precision with which that judgment was implemented. . . . The enemy low-flying attacks were very closely co-ordinated with the movements of the German infantry. They played a part in the success of the German counter-attack at Cambrai, but it should be pointed out that this form of low-flying attack was, at least in its scope, new to the British infantry, so that part of its effect was due to the advantage of surprise." The point that emerges here is that the German command had already appreciated that the strength of an air force lies largely in its mobility. Indeed, the basis upon which the famous "Circus" strategy was formulated was mobility—the rapid concentration of air strength at any threatened point rather than the spreading out of squadrons along the entire line. The history seems to make it clear that there was not the same understanding of the essential qualities of aircraft in the strategical direction of the British air forces. On the contrary, there seems to have been an obstinate adherence to what might be termed infantry methods in the air.

There can hardly be a fighting pilot of either the Royal Flying Corps or the Royal Naval Air Service, who was stationed on the Western Front at this period, who did not wonder precisely what were the relative strategical merits of the mobile "Circus," as employed by the German command, and the line of fighters as employed by the British. The point can be studied in this volume and it is certainly one of the most fascinating studies of the most effective use of air forces. It would be unwise to be dogmatic until the point has been thoroughly thrashed out; but, on the face of it, the evidence suggests that the "Circus" method was better suited to meet the conditions of the Western Front at that time: it gave the maximum effect for a minimum of effort, and it enabled highly trained, well-equipped air pilots, enjoying a strong morale, to be concentrated with rapidity at the place where they were most urgently needed. The big air battle near Busigny on 18th March, 1918, lends colour to this view. The battle had been anticipated by the British command, which had sent out a big formation so that heavy losses might be inflicted upon the enemy. But although our pilots to this extent enjoyed the initiative, their losses were heavy. The fighting drifted East of Busigny and ended at Le Cateau, after taking many of

the pilots almost down to ground level. Five " Camels," two " S.E.5's," and one " D.H.4 " were shot down in the German lines, and one " D.H.4," which was brought back by its wounded pilot, was badly damaged. Against this loss of nine machines, four German aircraft were " seen to crash."

Shortly after this the German offensive inflicted heavy losses on the British air forces. In two months 1,032 aeroplanes were lost. The fighting was severe, and one must admire the determination with which, in the face of heavy losses, the British pilots kept on the German side of the lines and with which they went over day after day to perform offensive patrol work. But the question again becomes insistent as to the wisdom of the policy of utilizing air forces in this way. Were these heavy losses accompanied by a commensurate warlike advantage? Was it necessary to engage fighter with fighter on so large a scale? What exactly was the purpose in view in thus encouraging continuous aerial combat? It must be confessed that the history, if it is read impartially and if the thrilling adventures of the pilots are not permitted to sentimentalize the view of the strategical situation, throws doubt upon the propriety of many of the decisions made by the British Air Staff. At times, the British flying services appear almost like the man who cannot resist taking part in a fight even though he has not the remotest idea what it is all about. What exactly was the purpose behind these incessant combats between fighting aircraft? Would the cause of the Allies have suffered if men and machines had been conserved and the fighting limited to those occasions where a definite objective was in view, such as the prevention of artillery observation, the interception of bombing raids or the shooting down of aeroplanes carrying photographic apparatus?

Before leaving the section dealing with the Western Front the reader should note that an account is given of the shooting down of Richthofen, wherein the view that he was shot down from the air and not from the ground receives support. It will be recalled that both Captain A. R. Brown and two Lewis gunners, W. J. Evans and R. Buie, of the 53rd Battery of the 14th Australian Field Artillery Brigade, claimed that the German pilot was the victim of their fire. In an attempt to resolve the claims, the body of the dead pilot was examined by four medical officers, and their reports showed that Richthofen was struck by one bullet only, which entered the right side of the chest and issued on the left side, at a level two inches higher than its entrance. The gun firing the bullet, said the reports, must have been " situated roughly in the same plane as the long axis of the German aircraft and fired from the right," and the medical officers agreed that the entrance and exit wounds were such

that they could not have been caused by a bullet fired from the ground. So the official decision was that Richthofen was killed by a bullet from the machine guns of Captain Brown's aeroplane.

Few historical records have given more clearly than this one the difficulties of operating aircraft with the Fleet. The Committee set up by Admiral Beatty to inquire into the Navy's air requirements, recommended a systematic reconnaissance of the North Sea by large flying boats supplemented by non-rigid airships. It also made recommendations for the carrying of aeroplanes in ships, and the conversion of H.M.S. "Furious" into an aircraft carrier was a major result of the report. The development of the flying boat, which owed so much to Commander J. C. Porte, is also described, and the early catapult experiments with hydraulic, electric and compressed air propulsion are given. The whole of the period of intensive experiment in flying off and in landing on decks is dealt with, and the actions against U-boats during the unrestricted submarine warfare are examined.

The record of naval air operations from Dunkirk includes the bombing attacks on the lock-gates at Zeebrugge and on Ostend dockyard; the work of naval aircraft during the attacks on Ostend by monitors of the barrage patrol; the air photographic survey of the proposed landing beaches; and the effects upon the Dunkirk air squadrons of the daylight bombing raids on England.

It was these daylight bombing raids that may be said to establish the validity of the theory of strategical bombing. After the third daylight raid on 13th June, 1917, Sir Douglas Haig had been asked to dispatch one of his single-seater fighter squadrons to England and to send another, for interception, to Calais. In the first week of July, as the attack on London had not been repeated, the two squadrons had rejoined the Headquarters Wing in France. But on the morning of 7th July London was bombed again. General Sir William Robertson, Chief of the Imperial General Staff, thereupon telegraphed to General Headquarters in France: "In view of to-day's raid and prospect of its early repetition, Cabinet have decided at a special meeting this afternoon that Home Defence Forces must be strengthened at once by two first-class fighting squadrons, and have accordingly ordered me to direct you to dispatch two squadrons to-morrow to England—aeroplanes by air, personnel by boat, as in previous cases. Exact period for which the squadrons will be needed cannot be given, but it is hoped it may be possible to reinforce Home Defence from other sources so as to allow one squadron to return in about a fortnight. Cabinet are further desirous of you making an air raid on Mannheim, but before deciding they wish you to report to what extent this will interfere with your operations."

In this historic message there is full justification for the strategical bombing performed by the Germans. The message proves that the bombing was having the effect that they had hoped; that is to say it was weakening the forces on the Western Front besides flustering the Cabinet and disturbing the people in England. Sir Douglas Haig protested against the withdrawal of the squadrons at a time when the fight for air supremacy preparatory to the forthcoming operations on the ground had begun. "These daylight attacks on London suggest, also," writes Mr. H. A. Jones, "a more general comment. The people had been so stirred that the Government had been forced to take energetic action to prevent a repetition of the raids. That a nation might be forced to sue for peace through an air offensive against its most important centres has been put forward as a post-war doctrine, and a study of the results of the (comparatively) slight German daylight raids in 1917 will lend support to this teaching."

This comment is wholly justified. In fact the most important lesson to be learnt from a study of the air operations during the period covered by this volume is that of the high value of strategical bombing. There is no sign that the British high command even began to appreciate it during the War. The best use was not made of our marked numerical superiority in aircraft, and strength was frittered away in aerial fighting designed to achieve an academic "air superiority." It was not realized that the mere passage of aeroplanes over enemy territory, unless they are engaged in photography, reconnaissance, artillery observation, low-flying machine-gun attack, or bombing, is of relatively little material importance in the prosecution of a war. Routine offensive patrols appear to have been ordered without any other objective than that of provocative demonstration. Fights provoked in such a way are not often productive of useful results. If the strength that was expended in these provocative demonstrations had been concentrated upon strategical bombing, a bigger material result would almost certainly have been achieved.

In fact, the history of these operations when we were at the zenith of our air power does not suggest any high level of military intelligence in those responsible for their direction. There is, however, the excuse that this was the first major war in which aircraft had played a part and that their use was therefore necessarily experimental.

Students of air warfare will find this volume one of the most important publications on the subject that has yet appeared. The book is well written and well produced; it contains a series of valuable appendices, including a table of anti-submarine results, the 1918 German Memorandum on the employment of battle flights, comparative tables of air strength, and the April orders of General Foch; and it also contains eleven maps, which help to elucidate the accounts of the operations.

THE VALUE OF OBSOLETE WARSHIPS AND WEAPONS

By Commander W. B. Rowbotham, R.N.

In the present day we are compelled by Treaties to scrap our ships as they reach the official age limit and are replaced by new designs, while there is a general tendency to regard all weapons which are not the latest products of science as being obsolete and of little or no value for a future war.

It is true that every war differs from the last, and that if we do not keep our armoury up to date we invite defeat ; but that is a somewhat different matter from adopting a policy of throwing a weapon on the scrap-heap directly some new and fascinating invention appears to take its place. Enthusiasts for improvement and novelty are liable to forget that while new types of weapons may, and probably do, result in new forms of fighting, war on a large scale nearly always sees a return to old conditions in one or more of its theatres, and there the old weapons again prove their utility ; moreover, if and when the new armaments are spent or have reached a condition of stalemate, it may be a reserve of so-called obsolete weapons that will turn the scale.

On the outbreak of any war the main fleet is always required for its regular functions of keeping open the trade routes and, if possible, bringing the enemy's main fleet to action. But there inevitably arise other calls on the Navy for ships to perform innumerable subsidiary services and to engage in minor, but often important, operations. These latter frequently permit of the employment of vessels whose lack of speed, armour protection, and other attributes required in an up-to-date man of-war, make them unsuitable for work with the main fleet.

A reference to the List of Ships in the days of our " wooden walls " during the comparatively brief intervals when a major war was not in progress, shows that very few men-of-war were kept in active commission, and that the majority were " laid up in ordinary," when they were roofed in over-all to preserve the decks from wet. Older vessels, whose fighting days were over, were not necessarily broken up or,

as the official wording ran " taken to pieces," there and then, but were often preserved and eventually used for the construction of breakwaters, or as fireships, etc. Of course, in those days there was no such thing as an obsolete or " over-age " ship as the term is understood to-day, and so long as the timbers remained reasonably sound the life of a ship was far greater then than is the case at the present time.[1] Occasionally, in the interests of economy presumably, the process of retention was carried too far, as was the case with the " Royal George," which sank at Spithead on 29th August, 1782; not from the cause given in Cowper's well-known poem, but because she was so rotten that her bottom literally fell out as she lay at anchor.

Obsolete Ships

Coming to more modern times: when, in 1906, the late Admiral of the Fleet Sir John Fisher, as he then was, initiated his measures of drastic re-organization, ships of no modern fighting value were paid off by scores; many were broken up almost at once, but others were relegated to boom defence or similar services, while many more found a temporary resting place on the Motherbank, in the Kyles of Bute, up Kethole Reach and the Lynher River. There they lay looking very forlorn and neglected with, at the most, only a caretaker and his family on board; but the precaution was taken carefully to grease and tallow their machinery. Some of these latter also found their way into the ship-breaker's yard; but in August, 1914, there were still a number left afloat. About the only " ineffective " ships still in commission were a few sloops and " flat iron " gunboats, which were principally employed as tenders to the gunnery, navigation, and torpedo schools; no-one imagined that they would ever see active service. But on the outbreak of the war, there was soon an urgent demand for anything that would float and carry a gun. One of the earliest calls was for men-of-war to support the hard-pressed armies in the fighting for the Channel ports. The modern ships of the Grand Fleet could not be risked for such work, and, until specially designed monitors could be built, the vessels employed in bombarding the Belgian coast, consisted of such aged craft as the old battleship " Revenge," resurrected from the Motherbank, the Gunnery School cruisers " Sirius " and " Brilliant," the sloops " Wildfire," " Rinaldo " and " Vestal," and the " flat-iron " gunboats " Excellent " and " Bustard." The speed of the two latter was such that they could not make headway against the full strength of the tide in the Straits of Dover, and, not infrequently, on the conclusion of a day's bombardment a signal would be received from them: " Permission is requested to return to base, when the tide serves."

[1] e.g., The " Victory " was forty years old when she flew Nelson's flag at Trafalgar.

In the search for ships suitable for coast attack, enquiries were made as to the whereabouts of the old battleships "Centurion," "Barfleur" and "Renown"; the 10-inch gun mountings of these ships seem to have been designed ahead of their time, in that they provided for an angle of elevation of 35°, instead of the usual 13½°. But it was too late; all three ships had already disappeared under the oxy-acetylene flame of the ship-breaker. The old turret-battleship "Hood"—then on the Sale List—was next sought for; but only a few days previously other interests had claimed her and she had been sunk to fill the "Hole in the Wall" at Portland as a precaution against torpedo attack.

Owing to the non-existence, in August 1914, of any anti-submarine defences at Scapa Flow, merchant ships were sunk in certain of the approaches to that base. Later in the war there was a grave shortage of every sort and kind of cargo-carrying vessel. Here again, if they had been available, obsolete warships would have served the purpose equally well.

At the commencement of the War the "Majestic" and "Duncan" class were still included in the main fleet organization under the category of sea-going battleships. As such they were merely potential death-traps for their crews, and they were very soon withdrawn for other duties. Some of them, such as the "Mars" and "Magnificent" were, to use an expression of the sailing ship era, armed *en flûte* and employed as troopships for the Dardanelles campaign; their turrets were removed and put into the new monitors which were in course of construction. Others did useful work as coast attack ships in that same campaign; yet others, such as the "Canopus" at the Falkland Islands, provided the necessary heavy gun armament for the defence of outlying temporary coaling stations.

Then, again, the older cruisers, which it would have been suicidal to employ against modern enemy vessels of equal tonnage, and which had been used immediately before the War as sea-going training ships, tenders and the like, or paid off preparatory to going on the Motherbank or even the Sale List, once more came into their own—not as cruisers working with the battle fleet, but for operations mainly unconnected with the only activities visualized by the "blue water" school. Some of the "Edgars" were fitted with bulges and sent to the Dardanelles; old second and third-class cruisers and smaller vessels went to various overseas theatres, where their shallower draught was an advantage, and their lack of speed and gun power of no great consequence. Some were re-armed, either partially or entirely, with the type of ordnance best suited to local requirements; others were converted into minelayers, block-ships, stationary parent ships for flotillas and bases, etc. In general, it

can be said that some use was found for every one of the old and obsolete vessels which were still afloat at the beginning of the late war. It is manifest that an out-of-date ship which may be useless for one theatre of operations may be quite valuable in another, where the conditions and type of enemy to be encountered are different. For example, if the old sloops "Algerine" and "Shearwater" had been so unfortunate as to fall in with either of Germany's modern light cruisers the "Leipzig" or "Nürnberg" when they were in the Pacific, no one can doubt for a moment what the ultimate result of the action would have been; but their sister ship, the "Espiègle," was sent with confidence to take part in the early operations up the Tigris, and she did excellent service there.

The Fetters of the London Treaty

This source of supply to meet what is one of the ever recurring needs of war, has been entirely eliminated by the provisions of the Washington and London Naval Treaties, the latter of which operates more unfavourably against us that any other nation. To-day we are only allowed to possess a certain amount of tonnage, the description and size of armaments are curtailed, and a ship has to be broken up when it has been replaced by new construction, six months grace being allowed from the date of the new ship becoming ready for commissioning. Thus, we see that, in future, there will be no Motherbank or other reserve to draw upon; moreover, under these Treaties many ships are scrapped without replacement. Let us examine the situation as regards the various classes of warships as it will appear on 31st December, 1936—the date when the London Treaty expires:—

Battleships—With the exception of the "Ramillies," which has one more year to run than the remainder of her class, all the "Royal Sovereigns" and "Queen Elizabeths" will be over age and due for scrapping on replacement. This leaves us with only the "Nelson" and "Rodney" under age. No new battleships are building or projected, nor can any be laid down until 1937 at the earliest. It will be 1940 before we can possibly have even one new battleship ready for commissioning. Although all, except the two latest ships, are of pre-Jutland design, a considerable amount of money has been spent on them in improvements and ordinary large refits. By the terms of the London Naval Treaty the "Tiger" and the four "Iron Dukes" have been scrapped without replacement. It is rumoured that Japan is contemplating denouncing the Washington Treaty; in that case the question of the revision of capital ship tonnage is bound to crop up afresh. Obviously, we ought to be free to retain what we now have, irrespective of the age of the ships and of what we may lay down after 1936.

Battle Cruisers—Of the three that we now possess, the "Hood" will be the only ship under age on the date under consideration. The remarks on the replacement and retention of battleships apply equally to battle cruisers.

Cruisers—The ships now building will bring us up to our total permitted tonnage, but as the new construction is made up of units which are larger than those about to be scrapped, and as we have to scrap by tonnage and not by numbers of ships, it follows that, on 31st December, 1936, we shall then have *less than* 50 *cruisers*. The four "Hawkins" class are due to go without replacement, because without them we already have our full quota of fifteen cruisers with guns of more than 6.1-inch calibre.

On the occasion of the introduction of the 1934 Naval Estimates, Admiral of the Fleet Sir Roger Keyes concluded his maiden speech in the House of Commons by urging that we might be " at the first possible moment released from the toils of the London Naval Treaty." His appeal is of special importance in the matter of cruiser reserves, for, as things stand, we may have to commence the year 1937 with nothing beyond our bare number of Treaty cruisers—under fifty. We may have a certain amount of new construction building which is to replace those cruisers becoming over age in 1937, 1938 and 1939, but this cannot be regarded as a reserve. In the event of the London Treaty not being renewed, we might retain the four "Hawkins" class ships, comparable with the latest type of so-called Washington cruiser in fighting value, and so commence to build up a reserve. This reserve, although it would consist of ships too old and too obsolete to work with the battle fleet, would nevertheless be a considerable asset to us in making up for the present dangerous shortage in commerce protecting cruisers, and for the many subsidiary operations which war always involves.

The alternative to an adequate number of cruisers is to take up and arm merchant ships. But the last war showed that this was very undesirable because eventually we needed every one of the latter for their normal work; in fact, it meant misusing valuable cargo carriers by turning them into weak and highly vulnerable warships; moreover, to-day, our Merchant Navy has dwindled to such an extent that we cannot now look to it to supply ships for the Royal Navy.

Flotilla Leaders and Destroyers—Here we find that the proportion now over age is much greater than that for cruisers. Of the leaders, twelve out of eighteen, and of destroyers ninety-four out of one hundred and thirty-four come in that category. Three flotillas are "building," but one of these has not yet actually been ordered.[1] The advisability of

[1] A flotilla consists of a leader and eight destroyers.

retaining all old leaders and destroyers is open to question, as these smaller vessels become really worn out at an earlier age than the larger and tougher classes of warships—this applies more particularly to those destroyers which were in service during the War. No doubt some would still be reasonably serviceable for the less important patrols and inshore convoys—as in the case of the 30-knotters in the late War—but many would probably only be fit for the ship-breaker. Each vessel would have to be considered on its merits.

Naval Weapons

In the years immediately preceding the War there was stored in the various dockyards and ordnance depots a large quantity of ancient and obsolete guns and torpedo tubes, together with their mountings and other accessories. The temptation to bring all this accumulation to produce, and so turn an honest penny, was great; but luckily wiser counsels prevailed, for it was realised that one day these ancient weapons would probably be wanted, and wanted badly. This foresight was rewarded and justified, and out of this collection of what there was a tendency to regard as merely "museum pieces" came the wherewithal to arm our merchant ships against the new form of attack—submarine warfare, our armed merchant cruisers, Q-ships, trawlers, the early tanks, the naval batteries in Serbia and many other services. For instance, one of the two 14-inch torpedo tubes mounted in the Q-ship "Ravenstone" came out of the old battleship "Nile." which had long since been broken up, even at that date. The redundant armament of those cruisers which had been converted into mine-layers, etc., was also used for similar purposes. Without this despised ordnance we should have been in dire straits for weapons to arm the new auxiliaries; in fact, it could only have been done after what might have proved fatal delay. Armaments were wanted at once, and it takes an appreciable time to make new guns. Naturally, these relics of the past were not so efficient as modern weapons would have been, but it is perfectly obvious that an obsolete mark of gun is better than no gun at all.

Army Weapons

In the case of the Army it was not, perhaps, so much a case of ransacking the Rotunda at Woolwich for actual weapons as of finding inspirations for the reproduction of ancient ordnance in a modern guise. The original 36-inch mortars designed for the Crimean War, which may be seen to-day adorning Woolwich Common, and their earlier prototypes in the Rotunda, remained where they were; but they reappeared in the form of Stokes' trench mortars, stick bombs, etc. The armoured train of the Egyptian campaign, with its 40-pdr. R.B.L.

Armstrong gun, was metamorphosed into the armoured car, the tank, and the 12-inch howitzer on a bogie railway truck. Hand grenades were usually thought to have " gone out " with the Brown Bess musket, but trench warfare resuscitated them ; and until the advent of the Mills' bomb any makeshift had to do. It never actually came to bows and arrows or muzzle-loading hand guns, but almost everything else in the limbo of forgotten weapons, or modern adaptations of them, was once more brought out. Incidentally, bows and arrows are still to be met with in the Far East, and within the last year a naval officer was shot at by a Chinese bandit who was armed with a crossbow.

Until a war actually breaks out it is impossible to foretell, with any degree of accuracy, all the different types of and numbers of ships and weapons that will be required. Approximations of future war requirements can, of course, be made, but financial considerations preclude the practicability, or even desirability, of making the 100 per cent. material preparations for a hypothetical conflict which may never materialise. A future ally may, of course, be able to supply those items in which we are lacking at the given moment ; but a potential ally of the right kind is not a very satisfactory source to count on for reserves.

History has a way of repeating itself ; ships and weapons of all kinds have always been required in past wars for many unforeseen services, and there is no reason to suppose that they will not continue to be so required in the future. We know full well that we have not now got anything approaching the material forces we should require in the event of war. Economic considerations limit output in time of peace ; but at least we can and should keep the weapons we do possess as long as they are fit for service, and not discard them merely because, in the light of recent improvements, they have been labelled obsolete.

ECONOMIC ASPECTS OF EMPIRE DEFENCE

By C. E. FAYLE.

On Wednesday, 17th January, 1934.

VICE-ADMIRAL L. G. PRESTON, C.B., in the Chair.

THE CHAIRMAN, in introducing the Lecturer, said that to many Service members Mr. Fayle was very well known, and to those who had not heard him before or read his works it was only necessary to say that he is one of the leading thinkers and writers on the economic element in war.

LECTURE.

IN treating so extensive a subject in the short time at my disposal I can only attempt to deal with it in the broadest outline. I hope, however, that even a bald summary of the Economic Aspects of Empire Defence will throw some light on the problems of Imperial co-operation in time of war.

The economic resources on which a nation at war depends, both for its fighting strength and for its endurance, may be grouped under six main heads. It needs adequate *Food Supplies*, both for the fighting Services and for the civil population; *Raw Materials* for its industries, in order that these may be able to equip, arm, and munition the fighting Services, and to pay by exports for its requirements from abroad; *Fuel* as the motive power of its industries and transport; *Plant and Machinery*, including plant which is either designed for the production of arms and munitions or readily adaptable to that purpose; an efficient system of internal and external *Transport* to give mobility to its forces and to carry foodstuffs, materials, munitions and manufactures to the places where they are required. Finally, its ability to make effective use of these material resources will depend very much on the strength and elasticity of its *Commercial and Financial Organization.*

To utilize these resources to the best advantage in the development of the national war effort; to procure from abroad those resources in which the state itself may be lacking; to preserve the activities, by which these resources are procured, exploited, and made available, from interruption by the enemy—this is the problem which has to be solved by every nation at war. Conversely, it is an essential part of the war

effort to deny, so far as possible, such resources to the enemy, and to prevent him from utilizing those which he possesses.

These are problems common to all states; but the precise form that they take and the emphasis laid on each of these six primary factors varies widely as between state and state. Take, for instance, the position of the principal Allies in the late War. For Great Britain, as always, the primary consideration was the safety of the sea routes by which the bulk of her food supplies and essential raw materials were received. Russia, self-sufficing in foodstuffs and with immense potential wealth in raw materials, lacked the plant and machinery necessary to turn those materials into arms and munitions, while her transport system proved unequal to the task of moving and supplying her armies and, at the same time, providing for adequate distribution of her food supplies. For France, highly equipped industrially, the whole situation was changed when her armies proved unable to keep the invader out of the districts in which her mining and manufacturing strength was chiefly concentrated. For Italy, a complete dependence on oversea supplies for the fuel necessary to her industries and transport was always the most urgent preoccupation.

ECONOMIC SITUATION OF THE BRITISH EMPIRE.

Now the British Empire, even from the political standpoint, is not a state but a confederation of states, and neither geographically nor economically is it a unit at all. The countries which make up the British Commonwealth of Nations are separated from each other by thousands of miles of sea; they represent different stages of economic development and almost the widest possible varieties of climate, of soil, of geographical conditions, and of natural resources. Great Britain is a small, thickly populated, highly industrialized island state; Australia is an immense, sparsely populated island continent, mainly agricultural and pastoral; Canada has two thousand miles of land frontier.

These differences in situation, in conditions and circumstances, and in special interests, are naturally reflected in divergences of outlook and policy in time of peace; and in time of war the economic aspects of Empire Defence take widely different shape in the different countries of the Empire. Yet the task in war, of the Empire as a whole, is so to solve these problems that, while no important separate interest is neglected, the whole joint resources of the Empire may be utilized for the common good, and the whole of its activities directed to the attainment of a common object.

A very brief survey of Imperial resources under our six main headings —food supplies, raw materials, fuel, manufacturing capacity, transport,

commercial and financial organization—will serve to show how widely varied are the problems which the different nations of the Empire have to face, and will give, also, some hints for their solution.

Food Supplies.

For food supplies the United Kingdom depends upon imports to the extent of two-thirds at least of its annual consumption. The other chief partners in the British Commonwealth are, in the main, self-sufficing. Canada, Australia, and New Zealand are, in fact, very large exporters of primary foodstuffs. The demands of the United Kingdom are actually met, to a great extent, from Empire sources, and the Empire as a whole is potentially self-sufficing, so far as mere capacity for production is concerned.

Raw Materials.

For raw materials, all Empire countries are largely dependent on imports. Each has its own characteristic products and its own special deficiencies. The outstanding feature in the position is the enormous import demand of the United Kingdom with its limited natural resources and high industrial development. Almost all its staple industries import either the whole or a very substantial proportion of their requirements, and of these imports a large part are drawn from other countries of the Empire. In India and the self-governing Dominions the industries are confined, to a considerable extent, to those for which local materials are available, and though they all have imports, they also all have important exports of raw materials. Most of the Crown Colonies, being little developed industrially, are important chiefly as sources of raw materials; British Malaya, for instance, depends for its prosperity mainly on its exports of tin and rubber, and the West African Colonies on their shipments of oil-seeds and kernels. There are many important products, such as tin, nickel, manganese, lead, wool, jute and rubber in which the Empire, taken as a whole, is self-sufficing, and for many of these the rest of the world depends largely on British Empire supplies. On the other hand, there are some very important materials—iron ore and cotton are notable examples—in which the Empire, even as a whole, is not self-sufficing, at any rate on the basis of present development; and some, such as antimony, potash, sulphur, and quicksilver, for which the Empire is almost entirely dependent on foreign sources.

Fuel.

Coming now to fuel we have to note a very great difference in the position as regards the two chief categories. The United Kingdom is still the leading coal-exporting country; Australia and South Africa

also have a surplus; India is self-sufficing, and although Canada is an importer on a large scale and many of the Crown Colonies on a smaller scale, the production of the Empire is equal to all Empire needs. For petroleum, on the other hand, all the chief Empire countries are dependent on imports, and only two minor exporting sources—Trinidad and British North Borneo—are within the Empire, although there are other supplies, in Persia and Iraq, that are at least partially under British financial control.

Manufacturing Capacity.

As regards manufacturing capacity, conditions vary so widely as to make generalization difficult. The Crown Colonies count for little in this respect. India, Australia, New Zealand and South Africa have all growing industries, and industrial development in Canada has reached a high level; much of the plant being capable, as was shown in the late War, of diversion to munitions purposes. Nevertheless, it is still roughly true to say that the prosperity of the Dominions depends mainly on their primary production, and that most of them depend largely on imports for manufactured goods; while the United Kingdom, though it imports large quantities of manufactured goods, for the sake of cheapness, of fashion, or of special excellence, is well equipped for the carrying on of almost every kind of industry, and pays for its supplies of foodstuffs and raw materials by its exports of manufactured goods.

Transport and Finance.

The internal transport system of the United Kingdom is highly developed and that of most other Empire countries is adequate to their present normal needs. External transport is almost entirely a matter of shipping, since Canada alone has any extensive foreign trade over a land frontier. Many ocean-going ships are registered at Dominion and Colonial ports, in addition to great numbers of coasting craft; but the great bulk of the ocean-going British tonnage is on United Kingdom register, and ships registered at United Kingdom ports play a large part in the trade of all Empire countries.

Finally, it is mainly to the United Kingdom, with its centuries of capital accumulation, that the other Empire countries look when they require additional funds for public works or for industrial and agricultural development, and a great part of their external trade is financed and insured in London. The London produce markets play a large part in the disposal of their products, even to foreign buyers, and a great deal of Dominion and Colonial produce is handled in the United Kingdom *entrepôts*.

Even from this very brief, very imperfect, and I fear very dry summary, it will be seen that the resources of the Empire countries are largely complementary. Speaking broadly, the United Kingdom has more capital than can profitably be employed within its own restricted area; more manufacturing plant than is required for supplying the needs of its own population; more tonnage than is needed for its own trade. Its needs are for foodstuffs to keep its people alive, and raw materials to keep its industries going, fields for investment of its surplus capital, cargoes for its ships to carry, and markets for its manufactured goods. All these the other countries of the Empire can supply, and in supplying them they receive the satisfaction of their own no less essential requirements; for their prosperity and even the maintenance of a decent standard of life for their people depend largely upon their ability to sell their primary products oversea, to procure manufactured goods with the proceeds, to obtain new capital when required for the development of their resources, and to make use of the money, insurance, and freight markets of the United Kingdom. The Yorkshire mill-owner, the London financier and the London or Liverpool shipowner are as important to the Australian farmer as the Australian farmer is to them.

INTER-EMPIRE TRADE.

Nevertheless, if we take the "Total Value of Merchandise passing in the Trade of the British Empire," as shown in the *Statistical Abstract*, we find that little more than a quarter consists of trade within the Empire, while three-quarters consists of trade with foreign countries. In this calculation the total value of the trade between any two Empire countries—being a joint interest—is divided equally between them. If we simply add up the total imports and exports of all Empire countries, so that the inter-Imperial traffic is credited to *both* the countries concerned, trade within the Empire will amount to just over 40 per cent. and trade with foreign countries to just under 60 per cent. of the total.

Taking as a basis the years 1927–29—the last three years of normal trade—only 29 per cent. of the trade of Canada, 30 per cent. of the trade of Malaya, and 35 per cent. of the trade of the United Kingdom was carried on with other Empire countries. For India, Australia, South Africa, New Zealand, Ceylon, and the smaller Empire countries taken together, the percentages vary from 45 per cent. to 77 per cent. In each instance, with the exception of Malaya and Ceylon, the bulk of the trade with Empire countries is trade with the United Kingdom. In fact the United Kingdom is directly concerned, as buyer or seller, in about 85 per cent. of the Inter-Imperial trade.

At the present moment, the proportion of Inter-Imperial trade to the total is on the increase, and it is likely to increase still further in the

near future; but neither actually nor potentially is the Empire self-sufficing in practice. This is not merely a question of those products which it does not, or cannot, produce on a scale adequate to Empire needs, although these, as we have seen, are important; it is a question also of the geographical and economic factors which govern the movements of trade.

In respect of very weighty and bulky commodities, mere distance will always be an important consideration. In no circumstances, for instance, is the iron ore which now goes from Malaya and Australia to Japan likely to replace the supplies now drawn by the United Kingdom from Spain and Scandinavia. Even in general trade, a shorter voyage involving lower freights and quicker deliveries, is often a very definite advantage. It helps, for instance, to account for the severity of American (and incidentally of Canadian) competition in the Australasian markets.

THE FLOW OF TRADE.

Old-established trade connections, reciprocity of demand and distribution of investments all have their influence on the flow of trade. The importance of Scandinavian and Baltic markets to British coal-producers assists the sale of bacon and dairy produce from these countries in the United Kingdom. The investment of hundreds of millions of pounds of British capital in Argentina inevitably provokes a steady flow of trade between London and Liverpool and the Plate. The United States occupies a predominant position in the Malayan trade returns because its consumption of rubber is many times that of any other country.

In the commercial relations between Canada and the United States all these factors may be seen at work. The two countries are contiguous; the Great Lakes provide a ready means of communication; the Americans have need of Canadian nickel, and asbestos and wood pulp, and their interest in the development of Canadian resources has led them to invest an immense amount of capital in the country. British manufacturers may gain, in time, a larger share of Canadian orders, but to Canada the United States must always be of primary importance both as a market and as a source of supplies.

Trade in fact will find, in time of peace, its natural channels, although these channels may be modified to some extent by fiscal and political arrangements. In time of war, other factors have to be taken into account. Considerations of war finance will dictate purchases in Empire markets, where credits can more easily be arranged, with the aid of the Dominion or Colonial governments, in the event of exports falling away. On the other hand, the safety of routes and the length of routes may

become primary considerations. In 1917 and 1918, when tonnage was greatly reduced by war losses and by requisitioning for naval and military purposes, it became necessary for grain and meat purchases from Australia and New Zealand to be cut down to a minimum, and purchases from Canada, the United States, and Argentina raised to a maximum, simply because it was only by concentrating the available ships on the shortest routes that the minimum of essential supplies could be brought in. Australia and New Zealand, for their part, were obliged to seek from the United States and Japan goods which Great Britain was no longer able to supply, either through shortage of tonnage or through the diversion of labour and material to war purposes.

The flow of trade will thus be regulated both in peace and in war by the circumstances and needs of the individual countries of the Empire. It would, however, be a profound mistake to suppose that the trade of any Empire country with countries outside the Empire was a matter of concern to itself alone, and of no Imperial interest. In the first place, the contribution which each Empire country makes to the collective strength of the Empire, political, military, and economic, is affected by its trade as a whole. It is the wealth derived by Great Britain from trade with Europe and South America, as well as with Empire countries, that enables her to bear so large a proportion of the financial burden of Imperial Defence, and the wide extent of her markets enables her to equip her industries more efficiently, and to supply goods to the Dominions more cheaply, than would be possible if the Empire was the sole outlet for her products. It is by the sale of wheat to France and Italy as well as to Great Britain that Canada has been able to extend her agriculture and improve her transport system, until she has become the greatest granary of the Empire.

In the second place, a great deal of the world's trade is carried on by means of triangular exchanges. The purchasing power of Great Britain in the United States is substantially increased by credits derived from sales to Indian merchants, who purchase British goods with the proceeds of gunny bags and manganese ore shipped to New York.

Finally, a great part of the trade of all Empire countries with foreign countries is carried in British ships, financed by British capital, and insured by British underwriters.

DEFENCE OF TRADE ROUTES.

It follows that any blow to the trade of any Empire country, whether that trade be with the rest of the Empire or with foreign countries, will, in some measure, affect the prosperity, and credit, and strength of the Empire as a whole. Each part of the Empire has its own special problems and its own special interests; to each part particular com-

modities, sources, markets, and routes are of peculiar importance; but each Empire country has also a direct practical interest in the welfare of all the rest, and it is to the interest of each that the problem of trade defence should be looked at as a whole.

In about one-half of this total trade, the United Kingdom is directly interested as importer or exporter; Canada in about one-eighth; India in about one-tenth. Australia and Malaya are the only other countries individually responsible for more than 5 per cent. of the total. Practically the whole of the traffic, with the exception of that which crosses the Canada–United States frontier, is carried on by sea, and the task of protecting it from interruption in time of war falls almost entirely on the British Navy.

It must be remembered, however, that in defending the trade of the United Kingdom, the Navy will also protect, automatically, a large proportion of the trade of other Empire countries. Let us take, as a concrete example, the trade of Australia. Forty per cent. of that trade is carried on with the United Kingdom itself, and much of the remainder follows the same routes. The protection of trade between Sydney and London or Liverpool, via Suez, will automatically give cover to Australian trade with India and Europe; the protection of the Panama route will automatically cover, for the greater part of its passage, Australian trade with the East Coast of North America. Indeed, the trade of the United Kingdom is so ubiquitous that adequate protection given to the routes it follows would leave few branches of Empire commerce undefended.

There are, nevertheless, cross-routes in which the United Kingdom has little direct interest, but which carry trades of substantial importance to other Empire countries. Such, for example, are the tracks between India and East Africa, between Australia and the countries and islands of the Western Pacific, and between Australia and New Zealand and the West Coast of North America. Further, even where the routes are common, there may be considerable stretches which are relatively of much less importance to the predominant naval partner than to other members of the British Commonwealth. Hence problems may arise both in the allocation of forces and in the routeing of merchant shipping, in which there is a genuine conflict between the claims of special interests to protection and the principle of concentration.

For Great Britain, the primary consideration must always be the security of the Atlantic approaches in which all the long-distance trade routes converge upon the Channel and Irish Sea. It may be no easy task in certain contingencies to reconcile this requirement with the provision of what other Empire countries may consider as an adequate scale of defence for the ocean trade routes. It is essential, therefore,

that it should be clearly recognized that the security of the Atlantic approaches is the first consideration not merely for the United Kingdom but for the Empire as a whole. It is here that the trade of all Empire countries, both with the United Kingdom itself and with all other countries of northern and western Europe, is most vulnerable to attack, and there are indirect interests at stake of the most vital importance. The extreme dependence of Great Britain on imports both for foodstuffs and raw materials renders her the most vulnerable to attack by sea of all the countries of the Empire. At the same time, it is upon her that the biggest share of the naval, the military, the air, and the financial burden of war is likely to fall, and her markets, her shipping, and her financial resources are of essential importance to every part of the Empire. So long as her resources remain comparatively unimpaired, the heaviest blow which can be struck at Empire trade in the outer seas will leave no irrecoverable wound; but the collapse of Great Britain would not merely be fatal to the joint war effort; it must also involve ruinous and lasting economic consequences to all members of the British Commonwealth.

The solution, without friction, of these problems of trade defence depends on mutual understanding and close co-operation between the various governments and defence authorities of the Empire. Such co-operation is at least as necessary in dealing with the problems of trade control.

CONTROL OF TRADE IN WAR.

It would take not a lecture but a very long book to discuss fully all the concrete problems which may arise in connection with the utilization of Empire resources to the maximum advantage, and the attempt to exercise economic pressure on the enemy.

The obvious first step in the economic offensive is prevention of Trading with the Enemy; but this, as we learned in 1914, involves not merely the stoppage of all direct intercourse with enemy ports but a watchful and rigorous control of all trade with neutral ports with which he has communication. It may involve extreme hardship to producers in an Empire country, accustomed to ship a large proportion of their products to enemy markets, more especially if those products are of a specialized character for which the Empire offers no adequate alternative market. This hardship may be still more severely felt if these products cannot immediately be declared contraband, and increased supplies from neutral sources replace, in part, those formerly drawn from the Empire. In such circumstances the policy of a rigorous control of Empire supplies may not be easy to apply. Should it be applied, the Government con-

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cerned may well consider itself entitled to financial assistance in its efforts to mitigate the lot of the producers.

This, however, is only the first step in the exercise of economic pressure. All the weapons of the economic offensive—black lists, bunker control, the denial of financial and insurance facilities to neutral firms suspected of assisting enemy trade, the control of banking and exchange operations—may affect adversely the interests of Empire countries; yet in order that they may be fully effective, they must be applied rigorously and simultaneously throughout the Empire as a whole.

How far it may be necessary to interfere with the normal processes of industry and commerce for the purpose of sustaining the war effort of the Empire itself, will depend upon the scope and duration of the war. In a struggle of maximum intensity, which is likely to be prolonged, it may be necessary to stimulate by subsidies the production in all Empire sources of materials having a special value for war purposes, or of foodstuffs and raw materials normally procured from enemy sources. Here, again, there is a need both for an agreed common policy and for an equitable adjustment of its cost.

In any war involving naval and military operations on a large scale, it will almost certainly be necessary to restrict drastically the civilian consumption of petroleum and of many important raw materials, in order to ensure adequate supplies for the fighting Services and the munition industries. In many instances the United Kingdom is so much the largest consumer that it might not be necessary to interfere with civil consumption in the Dominions; in others, it would probably be necessary to ask Dominion governments to co-operate by rationing their own people.

Should the tonnage available for commercial purposes be seriously reduced by war losses and the diversion of shipping to naval and military purposes, it may again be necessary, at any rate in the United Kingdom, to restrict, by a system of prohibitions and licenses, the import of goods that are not essential under war conditions, in order to set free the maximum ship-space for the carriage of essentials. A commodity which is not of essential war importance may, however, play a very important part in the export trade of some Empire country, and in that event a policy of import restrictions cannot, without friction, be rigorously applied except by consent of the government concerned, and, possibly, some compensation to the interests affected.

The utilization of Imperial resources to the full, demands also a common policy with regard to the conversion of suitable plant and machinery to munitions purposes; governed in each country, not merely by the requirements of local defence, but by its proximity to the main

theatre of war, and by the contribution it can make to the supply of the Imperial forces. In addition to munition requirements, the need for tonnage replacements and the requirements of Imperial finance may render it desirable to lay down in all Empire countries with highly developed industries a definite scheme of industrial priorities, postponing the requirements of the home consumer to the needs of the fighting and transport services and the export trades.

Among the gravest and most delicate problems are those concerned with the redistribution of purchases, either for the purpose of diverting shipping from a particularly dangerous route or for the purpose of economizing tonnage by concentrating it on the shortest routes. The Atlantic concentration in the last War left millions of pounds' worth of grain and meat on the hands of Australian and New Zealand producers, and diversions on such a scale must inevitably involve consultation with the governments concerned, and substantial obligations in respect of assistance to the interests affected.

Such diversions involve, of course, control of shipping as well as of purchases, and the control of shipping raises, at once, some interesting questions of jurisdiction. The right of requisition, for instance, is a Crown prerogative, and in exercise of this prerogative, the governments of India and Australia requisitioned, in 1914, many ships on United Kingdom register which happened to be in their ports. The Admiralty did not, I think, requisition ships on Dominion and Colonial register, and certainly the Shipping Controller was given no power over such ships, all arrangements as to which had to be made with and through their own governments.

Control of shipping employed in the carriage of commercial cargoes may be exercised either through direct requisition or—which many of us would prefer—through a licensing system directed to the discouragement of ballast voyages and the diversion of shipping from the less essential trades, while interfering as little as possible with the normal processes of ship management. Whatever system be adopted, the essential thing is that it should be applied, under a common policy, to all British ocean-going ships, wherever registered. The provision of carrying power for the Empire as a whole is a common interest; the adequacy of such provision in the essential services may be a determining factor in the war, and it would be equally inequitable and short-sighted for any Empire country to withhold its contribution to the general pool, in order that the ships might be employed, for its own special interests, in safe but not essential trades. For the same reason, as well as to avoid forcing up freights by competitive bidding, the chartering of neutral tonnage, if it cannot safely be left to the ordinary operations of the

freight markets, should be entrusted to a central authority—on the lines of the Inter-Allied Chartering Bureau—and the tonnage procured allocated to each Empire country in accordance with its special needs.

THE PROBLEM OF FINANCE.

Finally, there is the question of finance. We have already touched on this in so far as it affects the economic offensive, and the question of compensation to interests specially affected by sacrifices essential to attainment of the common object. There remains the wider problem of the pooling, if necessary, of the Empire's financial resources, in order that general assistance may be given to any country upon which the circumstances of the war impose an exceptional strain. In any event, close and cordial co-operation between the financial authorities of the chief Empire countries will be necessary, in order that war loans may be floated at the most advantageous moment and under the most favourable conditions, and that such operations as the pegging of exchanges or the mobilization of securities may be carried out with a due regard to common interests.

I have hardly had time to do more than name some of the outstanding problems arising from the Economic Aspects of Empire Defence; but I have said enough, I think, to show that many of them are exceedingly complex and exceedingly delicate. The satisfactory solution of these problems depends on the wholehearted co-operation of many governments, representing countries with a wide variety of special interests, and with policies shaped in accordance with their own conception of these interests; countries too, which may be affected in very different ways and to a very different degree by the immediate issues of the war. In 1914-18, thanks to the spirit animating the governments and peoples of the Empire, a satisfactory solution was usually found in course of time; but I do not think we can say that the whole resources of the Empire were utilized, or that its capacity for economic pressure was exercised, either as fully or as quickly as they might have been if we had given more thought to these problems in time of peace. The process of trial and error was slow and costly. Conflicting opinions and conflicting interests had to be adjusted by negotiations which were prolonged by reason of the number of parties concerned and the distances separating them. Even when an agreement on policy was reached, the administrative machinery for carrying it into effect took time to build up.

IMPORTANCE OF QUICK DECISIONS.

Now in time of war, quick decisions are as important as right decisions. Delay in applying measures of economic pressure may go far to nullify their effect. Delay in providing the maximum equipment and munitions

for the fighting Services may cost thousands of lives and prolong the war by months or years. Delay in dealing with problems of supplies and tonnage may hamper the war effort, lead to heavy, wasteful expenditure, and necessitate in the end drastic emergency measures involving an undesirable degree of commercial dislocation.

It is extremely desirable, therefore, that the nations of the Empire should study these problems in time of peace, and agree in advance upon a common policy for dealing with them, if and when they should arise. It should be possible to prepare in advance at least the outlines of the emergency legislation required for dealing with such matters as prevention of trading with the enemy, or requisition and licensing of shipping, so that the necessary laws or proclamations may be brought into force promptly and simultaneously by every Empire government. It should be possible to prepare in advance the framework of the administrative machinery for control of production, commerce, tonnage, and finance, so that it may be put into operation as and when required. I do not know whether the formation of a permanent Imperial economic general staff is a practicable proposition, but an excellent model for the kind of controlling authority that may become necessary in a major war may be found in the Allied Maritime Transport Council and the Programme Committees by which, in 1917–18, the resources of the allied and associated Powers were pooled and distributed, *from* each according to his opportunities, *to* each in accordance with his need. Let us remember, however, that the speed with which such machinery can be erected and the efficiency of its working will alike depend upon the extent to which the way has been cleared by previous co-operative study.

The maxim "if you wish for peace, prepare for war" has become a little blown upon in recent years, but there is certainly no measure of preparation for war less provocative, or less likely to lead to undue pugnacity, than hard thinking on war's economic problems. May I add that a study of the Economic Aspects of Empire Defence is likely to throw a flood of light both upon the much debated question of economic sanctions, and upon the necessities and possibilities not merely of Imperial but of world-wide economic co-operation, even in times of peace.

DISCUSSION.

COMMANDER CARLYON BELLAIRS, R.N., said: We have been, at any rate since the War, in a period of economic crisis, which has received constant consideration in Parliament. The governing consideration that we have had in mind has been to place the finances of the country in order, and necessarily in that process the defence Services are likely to suffer. The way that the Government dealt with the Chiefs of Staff was to tell them that they could be assured of ten years of

peace, and at intervals of a few years that assurance was renewed. But that is now at an end. It is no longer safe to assure the experts that we can be certain of another ten years of peace. During this time our defences have undoubtedly been diminished. We have lost many of the skilled men. The reason why it was said that there must be ten years of peace was because otherwise the Navy would have retorted that it took ten years to build the personnel. No attention was paid to the skilled men in the shipbuilding yards.

Another aspect of the problem is that we are practically insured in three offices—the Admiralty, the War Office, and the Air Ministry; so we have to consider what is vital in the three Services. In regard to the Air, Lord Trenchard used to tell us that the wastage in peace was 30 per cent., and that it would be 100 per cent. in the first month of war; so that within that time the whole of the Air Force would practically have vanished. Thus the question of replacement becomes urgent.

But, when we realize that the supplies on which the Air Force depends must come by sea, it is obvious that our most vital consideration is to see that our naval defence is adequate for all purposes.

There is another aspect in connection with the economic side. Something like thirty or forty years ago the late Lord Salisbury declared that the warfare of nations was changing its ground from a military to an economic warfare. I think he was before his time in saying that, but I am not at all certain that that is not what is taking place to-day; in other words, economic war requires even more consideration than military war. The question arises whether, in view of this consideration, we should withdraw from our European commitments. I am one of those who think we should withdraw. I do not believe it is true, as Mr. Duff Cooper contended the other day, that whenever Europe is at war Great Britain has to be at war too. Is it not possible, with the United States, for us to put ourselves at the head of the neutrals and say that we will not have our neutral trade interfered with whatever nations may be at war? That is a consideration we ought to bear in mind.

Another very important matter from the economic point of view is the fact that Australia is committed to a "white Australia" policy. That is on all fours with the policy of the United States to have, as far as possible, a "white America." Of course, they have a great many relics of the old slave trade amongst their population, but they are determined to keep their population white for the future. That object would bring us into line with the United States in a common policy.

There is another aspect which, in the shortness of time allowed, I shall not be able to deal with adequately. Every single treaty the Government makes with foreign nations is based on the idea of stimulating our coal exports. Now, is it desirable that we should stimulate our coal exports? I know that the coal interests and the shipping interests which carry coal are very powerful, and that there are large numbers of unemployed in the coal trade, so that Parliament is necessarily driven to the idea that coal exports must be stimulated. But if you get back to the considerations which Jevons advanced sixty or seventy years ago you will find that we are getting deeper and deeper into our coal measures, coal is becoming more and more expensive for our own manufactures, and that is a very important consideration in the economic rivalry of the United States. The result is that we may be endangering our future—at any rate we are living on our capital. I think we ought to bear that in mind, and not just live in the present as we so often do.

In addition to that, when we come to think of it, those coal exports in the past formed the outward cargoes of our ships and enabled cheap cargoes to come

back. That in its turn had a great deal to do with the decay of our agriculture, so that eventually two-thirds of our food supplies came from overseas, and thus we got a position during the War in which we were nearly being beaten through the submarine menace upon our food supplies. I only put that consideration forward as an important economic factor which, even as far back as the sixties, Gladstone took into his consideration; in presenting a famous budget, he said that we were exhausting the capital of the nation in the coal measures and, therefore, we ought to reduce the national debt. To-day, of course, we have a national debt beyond anything imagined in Gladstone's time.

Above all things we desire to have many years of peace in order to bring ourselves into a position of economic self-sufficiency, and the important thing is to direct ourselves to co-ordinating our policy with that of the rest of the Empire. We can no longer look forward to this island being the great Power which it was in the past, and more and more it must bring the Empire to its rescue.

THE CHAIRMAN:

I think the Lecturer has given us a very clear picture of, and has advanced cogent reasons for, the necessity of organising the economic factor on an Empire scale. I think he has also impressed upon us that it is not only the economic factor which has to be considered, but that there are other factors which have to be taken into account in Imperial defence—the political, the military, the financial, the climatic and the racial. These are, to some extent now, studied conjunctively as an experience of the War, but the study is largely academic, and although the principle was accepted at the Imperial Conference—I think in 1926—there is no machinery either to study the economic factor that we have heard about this afternoon or, from the broader angle, the co-ordination of all the factors which seems so necessary in regard to Imperial defence.

Since the rule of Westminster was destroyed by its Statute, it seems that no Dominion either cares or dares really to face the subject. This Commonwealth of Nations to which we belong is, after all, an experiment—almost as great an experiment as the Communistic economic planning in Russia. The Empire is often spoken of as a family; one can almost apply the simile of a modern family; the parent rather afraid of the children, and the children coming to maturity eager for self-expression and resenting parental advice. The result is a lack of unity, a lack of understanding of each other's outlook, and thus in the end we do not seem able to get together.

In democratic governments the social services have a first call on depleted exchequers. Those social services claim, first of all, the security of the individual, whereas what they should be considering primarily is the security of the community as a whole. That, unfortunately, appears to be forgotten or left to a discredited and impotent League of Nations with the pious hope for its potency in a distant future.

Sections of the Press have concentrated on the defence of the heart of the Empire. They seem to forget that although the heart is truly the centre, the arteries that lead to the heart, namely, the sea communications, are equally vital, and I do not think this is appreciated to the extent that it should be. Perhaps "the air" throws a smoke-screen on the sea.

If we ourselves have not realized the broader view, how can we expect the man on the South African veldt or the Canadian farmer to realize that his produce has to go over the sea, and that the imports which assist him to the getting of his produce have to go over the sea also? Probably he himself has never seen

the sea. How can we educate to the broader view and get the peoples of the Empire to accept some proportion which is really true and just of their affairs in the commonwealth ?

We have a Navy League and we have an Air League, and they are not always at one with each other. One almost wonders whether they have not become too departmental, but possibly a United Services Fighting League, if so co-ordinated, would appear military to many minds. Could we go further and have a Commonwealth of Nations Defence League, which would embrace all these factors I have named and would appeal to a much wider mentality ; for, even if you eliminate military weapons, you still have tariffs, boycotts, and currencies, which are all in themselves war-like material.

We must, however, I am sure, agree with Mr. Fayle as to the necessity for machinery which will harness our Empire resources for that emergency should it again arise.

ADMIRAL SIR WILLIAM GOODENOUGH : I beg to propose a hearty vote of thanks to our Chairman, both for presiding here this afternoon and for the very clear way in which he has summed up the excellent lecture given by Mr. Fayle. I think that the Chairman on these occasions deserves more support than he customarily receives in the way of varied expressions of opinion from the audience, especially from the younger men amongst us. I am quite certain that these young men in their messes or clubs are very ready to offer exceedingly free expression to what they think, and I wish that our Chairman or anybody who takes his place in the future might receive more support in that way during these discussions, either in the direction of tearing the Lecturer to pieces or of supporting him.

The customary votes of thanks to the Lecturer and Chairman were carried by acclamation.

THE DEFENCE POLICY OF THE UNITED STATES

By Ignatius Phayre.

IN the autumn of 1917 Herr Alfred Zimmermann, the German Minister for Foreign Affairs, sent a cipher despatch to Herr von Eckhardt, his representative in Mexico, in which he urged the latter to persuade the Mexican President, Victoriano Carranza, to approach Japan with a view to forming an aggressive alliance against the United States. The interception of this despatch not only put an end to President Wilson's neutrality in the World War but, by bringing home to the American nation the threat of armed invasion by a first-class Power, may also be said to have initiated a new epoch in the armaments of the United States. America even then, after two-and-a-half years of watching the war in Europe, was totally unready to undertake any campaign; her frontiers lay wide open for an extent of nearly 2,000 miles. Subsequent events had yet to reveal the degree of her unpreparedness. Those fears of invasion and the perplexity which they have engendered lie at the root of all the confusion which have surrounded American thought on defence matters.

For years before 1917, Japan's pride had been wounded by America's racial Exclusion Acts—to say nothing of that claim to the "Mastery of the Pacific," which is now an abiding issue between the two nations. Mexico's own reward for the Zimmermann *coup* was to be the recovery of Texas, Arizona and New Mexico, the huge domains she had lost in the War of 1846, when President James Polk, in his era of "Manifest Destiny," carried the Stars and Stripes out to California and the farther ocean.

The revelation of the Berlin plot created a great stir in American Service circles. The Monroe Doctrine of undisputed sovereignty in the Western World loomed as a precarious claim, when such a thing as invasion could be seriously mooted. Large German settlements existed in the three temperate states of Southern Brazil: Rio Grande do Sul, Santa Caterina and Paranà. The Brazilian President had already complained to his Congress about the truculence of their population and the minatory pose of the German Minister in Rio, a fervid apostle of *das Deutschland im Ausland*.

Mexico, however, whose annexation *in toto* had often been pressed in the United States Congress, was once more invaded in 1916 by President Wilson's order. Vera Cruz was bombarded, with serious loss of life and property. On the Rio Grande, General Pershing mustered a motley army out of the National Guards, whose queer "outfit" moved that able soldier to anger and amazement. Moreover, there was that mysterious "lease" in Lower California to a Japanese "trading company," which led to the so-called "Lodge Resolution" in the Senate. The latter forbade Mexico to grant any foothold to a foreign Power which might endanger the security of the United States. As such a gesture struck at the very root of national sovereignty, this was strongly resented—not only by Mexico herself but also by her nineteen sister-Republics, with Argentina in the lead. It is well known that that great State made a formal denunciation of America's implied hegemony a condition precedent to her entering the League of Nations.

Yet what quarter of the world offers the same opportunities to immigration as the empty continent of South America? In its nine million square miles every known climate can be found; its soil is incredibly rich; its raw materials as yet barely scratched; its unexplored areas still of enormous extent. What could prevent the overcrowded nations of Europe and Asia from establishing settlements in this vast area, whose present population does not equal that of Adolf Hitler's "Greater Germany?"

The answer is that the United States, by her Monroe Doctrine of 1823, must view any such alien "extension" as an unfriendly act. More than that, the States are prepared to resist any such spreading of Old World influence as a potential menace to the safety of the Great Republic. The claim has already been frequently asserted; as when a peremptory notice to quit Mexico was served upon Napoleon III after the Civil War. Whether a large American army was at that time available for a forcible eviction may well be doubted, in view of the widespread ruin and chaos at home and an empty Treasury in Washington —to say nothing of a *terrain* of extraordinary difficulty, even for the best of troops.

To-day, conditions are fundamentally changed. From across her northern frontier America has nothing to fear: the Dominion of Canada is securely held by the dollar nexus, and is undefended for 3,000 miles. Vexatious though it may be to have British naval bases in American seas, the Castlereagh policy still holds the British Government to friendship with the United States at any cost to her own prestige and national dignity. On the other hand, the two ocean "moats" have somehow shrunk alarmingly. Last summer, Air-Marshal Italo Balbo's 6,000-mile

mass-formation flight from Rome to Chicago set the American people thinking; and their own seaplanes—as though in significant reply—promptly covered in a single "hop" the 2,000 miles from San Francisco to Hawaii. New strategy and warship designs; the drastic action of Japan in Manchuria, in defiance of the Nine-Power Treaty; the future of the Philippines and the Mandated Islands—above all, the breakdown in international disarmament and the tense atmosphere in Europe—these and other factors have further combined to shake America's complacency of old. "We are a mercurial people," remarks that conspicuously able American, Professor Oliver Sprague, the famous economist, who was adviser to the Bank of England until President Roosevelt called him home last year.

That chameleon trait should always be borne in mind by close students of the United States. Here is a people peculiarly prone to abrupt extremes of exaltation and depression. And now, for the first time, their mixed millions give heed to the risks of invasion from overseas. It is this fact which accounts for huge increases in naval construction. More remarkable still is the clamour for a "continental" army, and an air force larger than that of any other Power. How, it is now asked, is a Federal force of barely 120,000 men to protect so enormous an area—which equals sixty Englands at least? And of what use are the more or less ornamental "National Guards" of the forty-eight States, whereof the various Governors are in nominal command. When President Lincoln called for volunteers in the Great Disruption of 1861, Governor Magoffin, of Kentucky, returned him a defiant refusal:—"Kentucky will furnish no troops for the wicked purpose of subordinating her sister Sovereign States."

Since 1901 various Acts of Congress have contrived to link these sectional forces with the Regular Army. No General Staff existed before 1903. A system of semi-independent War Departments functioned at their own will and pleasure. There was no co-ordination; a good deal of friction at times, and little opportunity for large-scale manœuvres of all arms. The people at large took no interest whatever in the land service; indeed, they grudged any money spent upon it. The result of this curious *sans gêne* was the indescribable welter of 1917, after President Wilson "declared war" in his emotional way. His early observer in France, Colonel (later Major-General) G. O. Squier, was given unique privileges at the front by Lord Kitchener. A keen soldier, Squier kept a diary of all his visits to every one of our army corps. Not a single operation escaped him, from novel methods adopted in the front-line trenches back to the farthest bases. Thus kindled with professional zeal, Colonel Squier kept in touch with Ambassador Page in London.

Page at last cabled to the Secretary of State saying that Squier's report was of the very first importance, and should be kept secret. It had no effect whatever upon the Wilson-Bryan complex—especially in the so-called "Golden Year" of 1916 when the deluge of dollars was reckoned in billions. Neither had Ambassador Gerard's very blunt dispatches from Berlin, after humiliating talks with the Kaiser and his war-lords, exerted any influence. The latter—so Gerard said—declared that America was a farcical "Power" in the military sense; she could, therefore, wait until the fighting Allies were disposed of. Then, indeed, would "Dollarika" be drastically dealt with, according to invasive plans which had been prepared.

Page was dismayed to find that Squier's report was merely acknowledged, and then "put on the files" in the War Department. His biographer remarks: "Had America acted upon the information sent to her, she would have had at least a policy and a programme, if not an army, on the declaration of war in 1917, and thus been prepared to a great extent for hostilities." But the President was shocked at the bare idea of making ready for war. It would alarm his people, he said, over a bloody tumult which was no concern of theirs at all! Neither was any heed paid to the gibes of Theodore Roosevelt, or to the earnest efforts of his close ally, General Leonard Wood, whose appointment as Army Chief of Staff had expired in April, 1914. Year after year, Wood spoke and wrote with tireless energy on the dangers that lay in lurk, and the folly of that Bryanite thesis which held that millions of patriot defenders would spring to arms "the moment an invader dares to land on our sacred soil." As early as 1910 General Wood besought Congress to vote $5,000,000 for military aircraft. His idea was scouted as militaristic lunacy. Yet seven years later, Wood was to see American airmen in France attacking German "aces" in borrowed 'planes of British, French and Italian make.

It was General Wood's "Plattsburg Idea" of intensive training-camps which enabled America at long last to create a rudimentary "army" of 4,000,000 men, of whom 200,000 were officers. His own application for service in France was ignored, though towards the end of 1917 he was allowed to go there as "an observer of military operations." Returning to Washington after being wounded by a shell fragment, he urged the Military Committee to raise a still larger army. For already the concept of invasion had passed from the academic sphere into a grim reality to be faced.

Under the shameful régime of Warren Harding little was done. But when Coolidge came to the White House, a clearer perception became evident. At a luncheon of the Associated Press in New York on

22nd April, 1924, the President traced his country's developments up to " the outbreak of the World War " . . . " For a long time," Mr. Coolidge noted, " we sought to avoid this conflict, on the assumption that it did not concern us. But on that subject we were lacking in accurate information. We found at last that *it did concern us intimately and perilously*."

Here was a plain hint of that invasion danger which American service chiefs have for the past ten years pressed upon their Government and people with increasing urgency. And far from damping this agitation, the Great Depression seems actually to have found funds for expanded armaments on a great scale in all the three elements. Our own statesmen and Press do not seem to realize how simple is President Roosevelt's plunge towards Recovery and Reform. Money is found by borrowing. And the cost of his " New Deal " is assessed at anything between $16,000,000,000 and $20,000,000,000. With ten million men still out of work, and the future so obscure and ominous at home and abroad, it was only natural for the three services to ask for large grants out of those prodigal billions " in order to provide employment." This was one of Mr. Claude Swanson's pleas when, as Secretary of the Navy, he initiated his recent warship programmes. The same " social service " motive figured in the demand of General Foulois for new aircraft fleets on a lavish scale. For the aerial route, it was averred, would overcome all America's geographical obstacles of mountains, climates and distance. Hints of philanthrophy have likewise flickered in the recent plans for a " continental " army.

Why talk of economy at all—it is argued—when in the Lower House of Congress Representative Patman, of Texas, can find hearty backing (209 votes to 176) for the fantastic Bill, which bears his name, and provides for the immediate redemption of the World-War Veterans' bonus certificates—which mature in 1945—by the issue of U.S. " printing-press" money to the value of $2,400,000,000, or £480,000,000 at par of exchange ?

More modest, though still prodigal, offers were made to the ruined farmers. Relief of private distress swallows millions more. For public works, $3,000,000,000 has been set aside. So go the soaring signposts of Mr. Roosevelt's " Untrodden Path." Therefore, no one can wonder that America's Chief of Staff, General Douglas MacArthur, should put in *his* claim at so propitious a moment. Here is the youngest Commander-in-Chief whom the United States Army has ever had[1] booming his " Get

[1] General MacArthur served in the Great War with much distinction, and was both gassed and wounded. He also served in the Far East, Mexico and the Philippines.

Ready " plan as boldly as the German General Goering does his *wehrhafte Bereitschaft*. With it also the American Chief of Staff is urging the true Prussian *Gleichschaltung*, or a co-ordination of armed forces on their economic and political sides. The General's civilian chief, Mr. George H. Dern, Secretary of War, thus heralds the new era : " In the obvious state of unrest now prevailing throughout the world—evidences of which are plainly visible, even in our own country—an efficient and dependable military establishment, always responsible to the will of its Government, constitutes a rock of stability and one of our nation's priceless possessions."

General MacArthur declares the army's present strength and readiness for war to be " below the danger-line and quite powerless to prevent invasion. It is of the most urgent importance that our weakness, alike in *personnel* and material, should be rectified without delay." That recent 15 per cent. cut in army pay should be forthwith restored—he goes on to say—since re-enlistments have fallen off, and " in some stations desertions have been more numerous." In this latter fact the Chief of Staff sees " some loss of that fine morale which has always distinguished men of the American Army."

The present strength, he points out, is only half that which Congress deemed essential for America's safety after an exhaustive study of the World War lessons in 1920. Mechanization is still notably backward : all but about a dozen tanks are out of date. The United States Air Force, on the other hand, is in good shape ; if the Army of this colossal land stands now only seventeenth in the world's land forces, its rank in the aerial arm is at least up to second or third. " Moreover," the General adds, "—and this is highly important—lying behind our Air Corps is an industrial capacity for aeroplane manufacture exceeding that of any other nation." Even so, a sudden test of the Army pilots revealed a professional weakness that shocked all America. For, sensing collusion and graft in the civilian air-mail contracts, President Roosevelt impulsively cancelled them all, and turned over the work of transport to his army. In seventeen days no fewer than ten Air Force officers met a violent death in consequence ; and bad weather cannot wholly account for successive tragedies which may have been partly due to lack of flying practice and proper instruments.

For many months the War Department nursed secret emergency plans for a " nation in arms," and therewith " an equitable distribution of the economic burden of war." At last General MacArthur came before the War Policies Commission with his spacious proposal for a " continental " force of 4,000,000 men to be raised by conscription. These were to form six field armies, with the maximum operation of vital industries put under trained civilian guidance. Reserves of

7,000,000 more draft registrants were to back this immense army. The draft age was fixed at 18–45, instead of at 21–30, as in 1917 when America entered the Great War as an " Associate " Power. No military control was to be claimed over the factories or munition-shops. But a War Industrial Organization could be set up to prevent undue profits, under a system of ironclad contracts of the " cost-plus " variety. No exemptions were to be allowed in the conscription ; but labour should be voluntary, if the production of war material was to be ample and effective.

The Commission to whom General MacArthur put this " militarization " of all America consisted of the War Minister and other Cabinet chiefs, as well as four members each of the Senate and the Lower House. Needless to say, the custodians of Peace got wind of General MacArthur's plan. On the same day that it was put forward, the Commission received an emphatic protest from the Federal Council of Churches of Christ. These were aghast at the endless legions. Such an army—Bishop McConnell declared—" could only create suspicion and fear among the nations of the world, and diminish rather than increase the security of the United States." Such pleas as these, though still by no means negligible, have lost much of the potency they had before the stark fact of invasion was squarely faced.

As a fact, America's myriad newspapers welcomed the new MacArthur hosts as an adequate bulwark of defence which had been too long ignored and neglected. Here is a Press comment that is typical of most : " With our memory still fresh of the miserably slow and laborious efforts that were needed when we entered the World War, and the tremendous waste that was involved in our lack of preparation, both our national safety and sound business instincts counsel the adoption of MacArthur's programme."

As a Quaker President, Mr. Hoover did all he could to block the rising tide of militarism. It meant Budget deficits ; it set a bad example in that universal down-tooling of war gear to which the unhappy Hoover was so devoted. In 1914, he recalled, America had spent only $267,000,000 on her national defence ; it had already mounted to $740,000,000. And yet here was *his* Army Chief of Staff, General Charles P. Summerall, calling for land forces of 3,500,000 men ! These militarists were surely mad ? So there must be yet another Arms Conference. " If we proceed without further limiting agreements," Mr. Hoover said regarding naval expenditure, " we shall be committed during the next six years to a construction outlay of more than $1,200,000,000—besides the further increase in costs for annual upkeep." His democratic successor is committed to much more than this. On the military side, Mr. Hoover's

economy drive wiped out thirteen army centres at one swoop; many more of the 190 army posts had been found useless. They were just "political forts," some of them only of "sentimental" value as relics of the former Indian frontier wars. But Congressmen in whose districts these posts were located fought stoutly against their being scrapped. It is this so-called "pork-barrel," or local interest, motive which accounts for waste of money beyond all belief in all three Services.

But this petty paltering with a grave problem vanished when General MacArthur was made Chief of Staff. He had just followed the autumn manœuvres of the French Army in the Department of the Aisne. There he saw Lacapelle break up the Blue Army's lines of defence by swift co-operation between the infantry and mechanized forces, at the same time covering his onslaught by smoke-screens, dropped by aeroplanes in perfect liaison. Forthwith MacArthur decided there must be "iron horses" for his cavalry, so he obtained a grant of $10,000,000 for 7,776 vehicles, both wheel and track. Field, medium and heavy artillery—even in Hawaii and the Philippines—now had all their units motorized. Engineers and signal corps, as well as the medical and chemical warfare services, profited by this timely windfall from the "New Deal"; so also did the machine-gun and howitzer units. Tractors and lorries, scout-cars, cross-country troop-carriers, big reconnaissance trucks and cable-laying cars—all these and other aids were forthcoming in profusion. Their manufacture was to set still more men to work, and put the sluggish dollars again in motion.

For new aircraft the War Department asked for only $39,000,000 out of the President's public works fund of $3,000,000,000. To this the Bureau of Aeronautics added a request for $40,000,000 more. These demands were speciously backed by an appeal to Mr. Roosevelt from the Aeronautical Chamber of Commerce, representing over 90 per cent. of an industry which has a special lure for the American people: "This additional employment"—it was urged—"would add to the pay-rolls many thousands of wage-earners, while raising our Air Force to the proper numerical strength. Such an appropriation would also assist the aircraft industry to maintain itself as an essential source of supply of that military equipment which is of vital importance to our nation."

In this way was America's economic recovery linked with the air arm and military security. Then apart from the machines, there were training-centres to be laid out all over the continent, especially in Texas where bright sunlight and clear skies can be counted as "things of always," in the Spanish phrase. So to the four great flying schools already existing in the Lone Star State—Kelly, Brooks, Duncan and Dodd—General MacArthur was able to add the "West Point Academy

of Aviation." This is the immense Randolph Field, near San Antonio. It is two and a half miles wide, and will cost no less than $20,000,000 with a town of 5,000 people established in it. Colonel A. W. Parker of the Quartermaster Corps took charge of this new aviation centre, under the eye of Major-General Benjamin Foulois, Chief of the U.S. Air Force.

What emerges from all this is a complex of conflicting facts which I must try to explain. Mr. Roosevelt utters in public the same disparagement of armaments which all Presidents back to Thomas Jefferson have done. At the same time he signs the Vinson Navy Bill, which provides $750,000,000 for new construction and replacements, while the War Minister is in zealous accord with the Chief of Staff in the matter of " adequate national defence " on a scale undreamed of in the care-free years of " shirt-sleeves diplomacy," self-sufficiency, and American isolation.

For this purpose of " militarization" it is necessary to educate public opinion throughout an area equal to all Europe, containing some 130,000,000 people of every known racial stock. Therefore all the service departments have publicity bureaux which pour our " stories " and photographs for the lay Press with tireless ingenuity and zest. In this work the Americans are past-masters, with an intuitive grasp of the mass-psyche which is wholly admirable. It is well to recall that under the Constitution it is : " We, the Sovereign People," who are supposed to rule and ordain in the strangest of all democracies. The people can—and do—put pressure, first upon their own forty-eight state parliaments, and then upon the Federal Congress in Washington. Members of both Houses there receive a huge correspondence of goading and inhibition : President Roosevelt himself has to deal with over 4,000 letters a day. His record was 120,000 letters, many of them from points farther off than London is from Istambul.

It is thought vital to impress upon the masses, first the value and dignity of a " Nation in Arms," and then the profound change in world conditions—political, economic and military—which now make so vast a land force loom as America's most pressing need. The army's peace-time tasks are broadcast, as well as pictured on the films and written up in the newspapers by civilians and officers of high rank. Disasters like great fires and floods, earthquakes and hurricanes call for military control. Army engineers at present supervise civil works upon which $344,000,000 is being spent : these include river and harbour and flood-control measures, especially in the Mississippi Valley where work has been found for 148,000 men, with prospects of employing at least as many more.

On the Great Lakes, on the immense new power plant at Muscle Shoals, on air surveys, and even on the Weather Bureau, the U.S. Army has left its mark of service. It follows, then, that new respect is due to the Military Academy at West Point on the Hudson, which turns out professional " assets " of high worth in all America's emergencies, whether at home or abroad. The people are reminded that both their C.-in-C. in France and the Chief of Staff at Washington during the Great War were West Point graduates; so were the commanders of the three separate armies, and thirty-four out of the thirty-eight corps and division commanders on the Western Front.

Thirty years ago, Elihu Root—one of the ablest and most far-sighted of Foreign Ministers—deplored the public apathy towards that Academy as the nursery of scientific soldiers. Mr. Root saw the West Point of that day as a lonely lighthouse which kept the flame burning in a Regular Army so small, that its very existence was forgotten in vast spaces between the Rockies and the Mexican Gulf. Yet the traditions of that slender force—the Minister prophesied—would one day inspire the far huger armies which he was certain the Republic would come to need when her long immunity was over, and the perils of invasion loomed for her at last, as for all the other rich polities which human history records. Well-informed students of the Far Eastern and European scenes add further warnings of their own. Those of Mr. Frank H. Simmonds are all too familiar to his people: " Can America Stay at Home? " and " America Faces the Next War " are two books by this experienced observer. It will be impossible to " keep out," Mr. Simmonds avers, after canvassing the many quarters whence the storm may come. Sudden war may be the result " of accident, and not of design." A series of " incidents "—who can say when or where?—may precede an explosion which will turn the pleas and protests of down-toolers into mere traitorous imbecility, for which the hangman's rope can be no fitting punishment.

So the U.S. Navy League, the American Legion and many laic bodies devoted to national safety now vie with each other in public instruction and in eager support of Press, radio and " movie " propaganda derived from Service sources. Time and space—heedless citizens are reminded—have now shrunk incredibly. Charles Lindbergh's flight over to Paris was a far easier adventure than the journey of John Adams from Boston to New York, where he took the oath as President when General Washington retired.

" The separation in time and space "—so runs the argument—" to which our Independence was primarily due, has forever vanished. To-day it would be possible for a European nation to govern the United States, even though severed by the Atlantic. England to-day rules India

better than she ever could her American Colonies in the XVIIIth century. Her sway over here was too slow and feeble to be effective; whereas her hold upon India has permanence and forceful grasp. From this inability to administer distant lands came much of Europe's aversion from far-off conquests. But we are not now protected by any such political factor."

"On the military side also we see revolutionary change. Consider the Great War, *à propos*. It was fought by men brought from all parts of the earth. Quotas from Canada, Australia and India were transported and arrayed in Britain's ranks in a way impossible in former epochs. In their trenches those men ate food grown in the two Dakotas, or in Texas. They slept in blankets woven in American factories from Australian wool. American mules, driven by Hindus, hauled British guns; the French beside them wore clothes made over here, and boots out of our New England machine-shops."

"Therefore, we shall all be blind if we fail to see that a European, or Far Eastern, army can be maintained *in* the United States as readily as European armies were supplied *from* the United States in 1917–18. The emergent moral is that armed invasion of our soil is no longer prohibited by the difficulty of commissariat and supplies for a force of all arms, large enough to make such an onslaught decisive."

Ingenious and fearsome devices of attack and defence are then desscribed or foreshadowed. Man's restless and combative nature is dwelt on; his impatience with too long a peace; and war's eternal lure for a virile race, from the popgun and tin soldiers of childhood to the dazzling honours and fame of a Napoleonic career. All this may alarm an emotional people; yet the U.S. Government think it a prudent, even a wholesome, state of mind, and one tending to what Nazi zealots term the *Ertüchtigung*, or invigoration of the masses in the true soldier-spirit.

A really "adequate" army may be America's, if the people only will it so. The potential of man-power is there; so are the metals and every accessory of war, as well as that nervous energy which up to now has found an outlet chiefly in commercial adventures. Let them but look at their civil aircraft and see in it a "convertible" defence in case of dire need. Last year those lines flew 124,000 miles a day over "lanes" of 27,000 miles. From ocean to ocean was now but a day's flight instead of a week's train journey. The Pan-American route from New Orleans zoomed down to Rio and Buenos Aires. Here was an aerial conquest of more potent appeal than any other and it could serve a two-fold purpose by becoming part of America's army at a word of command.

It was the same with the new and heavily-subsidized mercantile marine; here was an auxiliary for the transport of troops which was

so lamentably lacking in the World War. Still further to rouse the people, air armadas in flights of hundreds swept over New York city. Bombers and attack 'planes flew so low that spectators on the Chrysler, Woolworth and Empire State skyscrapers actually looked down upon these craft as they roared through the deep canyons of Lower Manhattan. In theory, that swarm of planes was moving upon enemy forces which had just destroyed the Panama Canal and with it the U.S. Battle Fleet stationed in the Pacific Ocean. So that was a day of what the Japanese call " dangerous thoughts." But what if they had been real enemy 'planes, with targets below them beyond any giant bomber's dream? The ready answer was a new mobile gun on carriages capable of movement at 50 miles an hour, with electric fire control.

As for gas and bacterial terrors, citizens are comforted by Major Adrian St. John, of the U.S. Chemical Warfare Service. Alarmist predictions of wholesale havoc in cities, he finds absurdly exaggerated. Only twelve of the thirty-six gases used in 1918 have been retained by the U.S. Army. Of these, five are of the phosgene or carbonyl-sulphide type; the rest are the " persistent " gases. Major St. John considers that both in narrow thoroughfares like Wall Street, and in spacious boulevards like Park Avenue in New York, the gassing of populous cities is " a rather silly idea," calling as it does for supplies and climatic conditions which leave too much to chance, and take no account of the defensive measures. In March, 1918—this specialist goes on to note—the Germans fired gas-shells for three days at the Cambrai salient, a total of about 150,000 rounds; these caused 4,300 casualties, and of them only 48 were fatal. New gases, it is true, have since been devised. Of them all, only three can be reckoned useful under war conditions; and none is superior to the heavy and " persistent " mustard-gas, or dichlordiethyl sulphide.

Such details as these make good publicity for the new " continental " army, and striking photographs go with them, *ad captandum vulgus*. In turn, the people read of the Philippine Scouts and their work in the wilder " head-hunting " isles of the Asiatic Archipelago. Of the Hawaii and Canal Zone garrisons, too; of harbour defence by the Coastal Artillery, and of the peripatetic Marine Corps, whose Chief is a member of the Navy General Board in Washington. The single aim is to present the army as an integral part of that triune weapon, which must support America's peculiar policy, and the conquest of new markets for her teeming products of the factory and the soil. The futility of disarmament is driven home; the security of the strong man armed is vindicated with Bible quotations. And lastly, the respect which the world has always had for well-weaponed demands is attested by pre-eminent leaders, from Demosthenes to Pitt.

Naturally the " war-haters " are not silent before so " un-American " a barrage of militant facts. Yet the voice of World Peace comes now in a minor key and tends to grow ineffective against the new bugle-blast of Security. An article by Mr. Harry Woodring, the Assistant Secretary of War, was recently pounced upon. In it that official said plainly that the Civilian Conservation Corps was part of an army drive for " preparedness." That labour force, I may say, is 300,000 strong, and recruits get $1 a day and their food in the forestry-camps and other spheres of utility. They are certainly subject to army discipline, and officers of the Federal Army control them.

Hence the outcry of peace-apostles who saw hundreds of millions of money handed out " sideways " to the three Services from a " New Deal " which is piling up a National Debt such as America never saw before.

In this case of the " C.C.C." President Roosevelt saw fit to intervene. He sent his " contact " Secretary, Mr. Stephen T. Early, to reprimand that junior Minister at the War Office for so indiscreet a statement. Mr. Woodring was sorry " he had not expressed his views more clearly."

Is America vulnerable to invasion? Undoubtedly she is; and two Powers at least have elaborated plans for the task. Her fighting Services are professionally keen, but they lack the traditions and experience of war on the major scale which the older Powers possess. Yet it must be borne in mind that no first-class enemy has ever yet been faced unaided on sea or land. Even the Germans of the late autumn of 1918 felt the marasmus of defeat upon them, for " domestic " reasons which General Goering has recently expounded in vigorous propaganda of his own. Again, the martial spirit has always been discouraged in the United States. Her war inventors, from Hiram Maxim to Isaac Lewis and the Brothers Wright, have had to find scope abroad. Her naval designs have been largely imitative, and too often marred by " stunt " features which have proved costly in lives and money. Long ago Sowden Sims was writing to his President, Theodore Roosevelt, to protest against certain craft " over which we ought to have shed tears instead of champagne! " It is the same with military equipment, and with the aerial arm; all American devices and types are said to surpass any other, and a great display is made in propaganda parades in the cities.

Close watch is kept upon the more martial Powers, both East and West; and secret service funds of large amounts are the only appropriations which the Federal Congress passes without any discussions as to their use and purpose. A grave hindrance to efficiency is the frequent change of policy when a President has served his term of four years, or eight at most. Here the classic instance was the swing from Woodrow

Wilson's "internationalism" back to the "normalcy" of Warren Harding's scandalous era, and the Washington Conference of 1921–2, which we ourselves have ample reason to deplore.

It will be seen that the U.S. service chiefs have an uphill task with the enormous *corpus* of indifference. Their one hope lies in rousing a complacent public—not in a "nation," as we of Europe understand the term, but in a stupendous and very "sectional" domain of continental range, whereof one tier of States faces the Pacific Ocean with politico-social problems peculiar to itself. These States differ fundamentally even ethnically and climatically, from those of the industrial East, three thousand miles away, or from the enormous Grain Belt—which, in turn, has little in common with the "Deep South" and its negroid millions, or with the Rocky Mountain and Desert States of the far North and South-West respectively.

Next year sees a momentous re-casting of national claims in an Arms Conference where a militant Japan may demand naval parity with the United States. The latter is plainly nervous as this event approaches—especially since the recent *démarche* of Japan in respect to her implied hegemony in Chinese affairs; and hesitant gestures have been made from Washington to both of the Far Eastern Powers, who seem to be approaching a clash of their own. So it is what the future hides which accounts for General MacArthur's plan for an army on the "continental" scale, and a vast co-ordinated scheme of defence with the Navy and Air Force and the whole of America's industries. For only by that means, it is now felt, can those far-flung claims under the Monroe Doctrine and the "Open Door" in the Far Eastern markets be upheld against the militant dictators of Europe and Asia. These seek new outlets for their surplus populations—Japan's own increase is over one million a year—as well as other markets for their native products. Couple with these impelling quests an assertive race-pride, East and West; a renewed faith in armed force as the ultimate arbiter, and the fallen prestige of the League of Nations—and we realize the anxiety of so loose and cross-pulling a polity as the United States as a well-founded portent of our striving and clamorous day.

With her own vague fear I began this survey, and on the same note of dim *malaise* I conclude it even as Mr. Roosevelt himself began his "reign" last year with a mention of "Fear" in the mass-psyche. Meanwhile, her destiny as paramount Power in the Western World remains at the mercy of one politician and forty-nine separate parliaments!

ARMIES OF THE AIR

A FRENCH VIEW

(Summary of an article by General Armengaud, published in the "Revue Militaire Générale" for November, 1933. In view of the author's official position and of the conversion of the French Air Force into an Army of the Air—a process which will entail some re-organization—the article is of importance. It should be read in conjunction with a previous article, attributed to the same author, a summary of which was published in the JOURNAL *for August, 1933.)*

THE primary characteristic of aerial units is their mobility; a corollary to this attribute being the great radius of action possessed by aircraft. By grouping aircraft into an Army of the Air these two characteristics can be utilized to the best advantage.

The late War showed how modern fighting tends to spread over many and great areas. In the future, therefore, the Army of the Air may come to form a mass of manœuvre available for action in any or all theatres of war simultaneously. It may even happen that localities remote from the true focus of the war will offer the best opportunities for securing the maximum effect against the principal enemy or his principal forces. Naval forces may thus become "an army of liaison" between the home country and such extensive theatres of war; The Army of the Air may accordingly be called upon to work in combination with naval forces, just as it may co-operate with land forces.

To illustrate the importance of these facts, let us visualize the results which the Allies might have obtained during the Great War if they had possessed an Army of the Air, such as France may have by 1935.

In August, 1914,—it was obvious from the very outset that the Germans were directing their main thrust against France through Belgium. The British and French Armies of the Air, working from their home bases, would have hampered the German deployment and advance, while locating their entire forces. The strategic surprise on which the Germans so largely depended could not have been attained. Moving their air bases into Belgium, the Allies' action might have been yet more effective.

Between September and December, 1914, certain far-seeing individuals, in the Allied governments and armies, felt the need of linking up the allied action on the Western and Eastern Fronts. The capacity for rapid manœuvre inherent in the Armies of the Air should have convinced even the most sceptic as to the practicability of such an end. The attempt on the Dardanelles would then have been carried through successfully. Within a few days aerial forces could have secured the necessary bases in Serbian territory and in the Ægean Sea; enemy troop movements would have been prevented; the forcing of the Straits, in combination with naval forces could now become a practicable operation and would have been followed by the occupation of the territory adjacent to the Straits.

By these means Rumania should have been brought into the war earlier. Such a fact would permit of a line of air bases being prepared from Serbia through Rumania into south-western Russia, and the Russians could then have been strongly supported.

In August–September, 1915, the long delayed Franco-British offensive was set in motion in order to relieve the hard-pressed Russians, but it failed to prevent great Austro-German strategic successes at the expense of Russia.

A considerable proportion of the Allied Armies of the Air—British, French and Italian—by utilizing the air bases then in existence could have supported the Russian effort against the Austrian right. The combined four Armies of the Air could then have modified the situation far more effectively than the offensive actually carried out could ever have hoped to do by indirect pressure.

In the autumn of 1917 the Central Powers were attacking Italy. Franco-British land forces hastened to the assistance of Italy and restored the situation. But they were too late to prevent the original Italian defeat. In like circumstances French, British and American Armies of the Air could have been transferred to northern Italy, whence they could have hampered most seriously the Austro-German movement whilst still engaged in the Alpine defiles and before the Italians were defeated.

Again, *in February–March,* 1918, it was clear that the Germans were planning a decisive thrust in the West. The combined Armies of the Air of France, Britain, Italy and America might have been concentrated on an arc against the probable axis of the attack. Then a heavy onslaught by air on the formidable assembly of troops in the zone Cambrai–La Fère–St. Quentin–Guise must have revealed the probable direction of the attack and thereby transformed the course of the consequent battle.

Lastly, *at the close of* 1918, when the Allies advanced from Salonika towards Vienna and Buda-Pest, the Armies of the Air, starting from their bases in Italy, Serbia and Rumania, would have found an early and priceless opportunity to attack the rear of the Austro-German forces ; not to mention the possible effects of the threat of a bombardment of the enemy's capitals.

Moreover, throughout the War, quite apart from participation in these great movements on land, the Armies of the Air would have waged a war of attrition against the Central Empires. Employing their bases in England, France, Italy, Serbia, Macedonia, Rumania and Russia ; at one time working from widely divergent points and along different routes, at another, concentrating their efforts, they could have harried ceaselessly the great industrial Rhineland towns, not to mention such of the Bavarian cities as were accessible from the South or West ; and also, Vienna or Buda-Pest, which could be reached from Serbia, Venetia or Rumania, while Constantinople and even Berlin and Silesia might have been attacked.

It needs but little imagination to visualize what the Armies of the Air of 1935 might have accomplished had they existed in the War. Yet there are many who still do not realize what results the free play of such forces might entail. Even against the evidence of facts, not a few refuse to admit the strategic value of such an instrument of war.

A further quality of aerial armaments is to be found in their ability to combine with either of, or both, land and sea forces. This capacity goes on increasing in proportion as aero-engines become more enduring and more reliable. Aeroplanes are now used at sea, while seaplanes can even cross continents. So much is this the case that, should France ever become engaged in a war in the Western Mediterranean region, her Army of the Air should be capable of working from bases sited in Europe or in Africa while engaged in operations against land or sea forces indifferently. The Army of the Air has thus become a factor common to either land armies or navies : it can co-operate with either and become subordinate to either.

It would seem, therefore, in accordance with the principles of the economy of forces and of concentration, that all air forces maintained specially for service with land or sea forces and as auxiliary arms should be reduced to a minimum : by these means the greatest possible volume of air power could be directed to assist the land or sea forces as the situation may direct. Such is the proposition championed by Douhet in Italy.

This, however, is an exaggeration, since there exists no absolute rule in war. Even the greatest of strategists has not been able to disregard

so completely all secondary theatres of war or forces needed for operations therein. It has to be remembered, also, that both land and sea forces now possess weapons which would, under modern conditions, be blind without their attendant aircraft. In modern warfare, whether on land or at sea, it is impossible to imagine huge bodies of troops or a fleet without their attendant aircraft for information services or for their protection against enemy air forces.

Nevertheless, all such ancillary units should be reduced to a reasonable minimum, subject to their being capable of reinforcement as and when and as long as the military situation may demand. Also the concentration of means in such a manner as to derive the greatest benefit therefrom at the least possible expense remains a burning question to-day in a budgetary sense: it has to be admitted that, in present circumstances, no nation can afford to set up a strong military air force as well as a naval air force, whilst simultaneously creating a powerful and independent Army of the Air.

At this point it is necessary to take into account a weighty consideration. If the cadres of the Army of the Air are to be called upon to act, now with an army, now with a fleet, and then independently, these cadres may not be adequately trained to sustain each of these parts. The objection is serious and is the justification for the maintenance of a separate naval air service. The same reasoning is also advanced for the formation of a separate military air service.

This objection, however, appears to be a trifle exaggerated, so long as land armies and their higher formations possess trained observers who, when required, can join those air forces selected to reinforce the land formations, and perform duties which need a detailed knowledge of land warfare. The same reasoning should apply to the naval service. Such a system is, no doubt, excellent so long as the necessary observers are available at a moment's notice and sufficiently well trained in aerial defence on land or in their duties at sea.

Such an arrangement, however, does not solve the problem from the air point of view: this difficulty can only be met by an appropriate specialization of duties among air officers.

Air officers are already developing into three types, which are daily growing more distinct—if only in the way of recruitment, promotion, uniform badges, age limits, etc. These are:—

(1) Engineer officers;
(2) Ground personnel;
(3) Flying personnel.[1]

[1] In French designated as P.N. (navigating personnel); ground personnel is styled P.N.N. (non-navigating personnel).

The latter, as happened in the Great War, will doubtless be divided into :—

(*a*) technical officers ;

(*b*) officers of air units proper.

It is Class 3 (*b*) alone which is to be trained for the performance of duty with land and sea forces, as well as for tasks involving either defence of the home country or attack of the enemy's territory. These officers, after receiving a general military education at an Air College should, before promotion to rank of Captain, be attached for a short period to both the army and the navy. They should then be put through a war course adapted for air officers ; this should, in great part, be identical with that of a military staff college, supplemented by studies at a naval War School and at an Air College. This means that the education of a Captain in the Army of the Air will last as long as that of a military staff officer ; this is not to be wondered at if the scope of his duties be taken into account. It is only by such means as these that it will be possible to eliminate the fears of senior land and sea officers as to the competence of air officers to maintain successfully the unity of purpose of the three services and to partake in combined operations.

Another substantial objection is to be found in the question of material. Will air units, equipped with the same patterns of material, be able to fulfil all their tasks, both in close co-operation with land and sea forces, or independently and at a greater distance. Reconnaissance work necessitates special aircraft ; some of that type, by reducing the fuel carried, might be employed as occasional bombers, though only for short distances. All kinds of fighting and intercepting work, however, can be undertaken by the same machines, that is, the single-seater fighter. Bombers, of a " semi-heavy " type, can attack both the rear of armies and vulnerable points in an enemy's country. Should these be endowed with great speed—and speed is more and more regarded as the best defence against interception and ground armament—such craft could also be used for daylight strategic reconnaissance. A multi-seated bomber is less well suited for night reconnaissance, but it would none the less be a valuable support for units specially equipped for such a task. The attack of large permanent targets can only be carried out by the " heavy " or " giant " type of aircraft ; but such targets normally lie outside the zone of the armies.

The objection is not, therefore, irrefutable, and it is no exaggeration to state that all chaser units and all " semi-heavy " bombing units of the Army of the Air can be employed effectively either in close conjunction with other forces or independently of them.

Other inherent qualities of aircraft are the rapidity with which they can get into action, and their readiness to initiate hostilities immediately on an outbreak of war. The latter characteristic is highly important, because it is essentially at the commencement of hostilities that the action of aircraft can prove most deadly; for, in peace time, no country can maintain a complete system of air defence. Further, a state harbouring hostile intentions can, unquestionably, strengthen its air power clandestinely for some months before it intends to attack.

In any case, the Army of the Air, from the moment war is declared, becomes a formidable instrument capable of dealing heavy and repeated blows at any distance from its bases[1] against vital spots in the enemy's country or organization. To this terrific threat there is, it seems, but one reply: to arouse the feeling in the aggressor that he is by his action exposing himself to certain reprisal. It is but natural for France, therefore, to organize her air forces into an Army of the Air ready to strike at an instant's notice. Likewise it is but logical to require of that service that it should spend itself, to the very limit of its capacity, in exploiting this priceless opportunity. To hesitate, even for a few days, would be to let slip the golden hour.

One argument of real weight may be urged against this basic conception. The Army of the Air in such operations must suffer appreciable losses. So, when the land forces are at length in a condition to embark on an offensive, the air arm might be partially worn out; this would violate the great principle of war, that all forces must strike together. But this argument seems to rest on far too narrow a conception of future warfare. It is a false assumption that modern land forces cannot enter upon an offensive because all their reserve formations are still some days behind the first line troops. Also, if these aerial attacks on a grand scale produce such an effect that it continues to be felt until long after the beginning of the general offensive on the ground, it is wrong to maintain that there will be dispersal of effort, because the demoralization which will result from them will infallibly affect all subsequent operations. It is, of course, desirable to reduce the interval between the initial attacks in the air and those on the ground as much as possible; but to delay the former would be to deprive the Army of the Air of its overwhelming advantage of surprise. Consequently the ground forces must expedite their mobilization and concentration by methods which may depart entirely from all pre-conceived standards: in fact, such methods are already

[1] The distance from their base at which aircraft can operate is, of course, definitely limited by their radius of action, which in turn is dependent on their load. The greater the load of fuel, the less the load of bombs, and *vice versa*: an important factor in strategical considerations.—EDITOR.

being forced upon us by present-day threats of " surprise attack " on land.

Yet another cause has contributed to the creation of the Army of the Air, namely the technical developments of aircraft in respect of speed, useful load, and ceiling.

Speed is the best defence of aircraft against artillery. A bomber has three or four times more chances of avoiding gunfire when travelling at a speed of 180 miles than it has at 120 miles per hour. The same holds good of bombers eluding interceptors. In practice, the faster the bomber the further it will fly over enemy territory without being attacked by the interceptors of the defence. Accordingly this increased speed will, within limits, facilitate those more distant attacks which were regarded as either very difficult, or impossible of realization, during the last War.

The *increase of load* augments the results to be expected from aerial attack. It also permits of a better armament being fitted to bombers; this, in turn, may enable them to reach their targets in spite of attack and to regain their base without undue loss.

The *higher ceiling* is important in that it gives the bomber a better chance of eluding all the resources of the ground defence, particularly the observing system. On the other hand, bombing from great altitudes means decreased accuracy, when only the larger targets will repay attack. But, the attack of these larger targets is scarcely likely to have a very intimate relation, either in space or time, with the ground operations.

Such are the essential qualities of aerial forces which have led to the constitution of the French Army of the Air. Brief reference has also been made to the ideas that underlie its organization. The latter must include :—

(1) As regards units—

(*a*) Units allotted to other Services for reconnaissance or exploration, for observation, and liaison duties, for the pursuit of hostile aircraft; units constituting portions of higher land formations, of cavalry divisions, armoured or motorized divisions, army corps, and armies; units serving with the navy;

(*b*) aerial units organized as large formations for pursuit or bombardment.

Units in category (*a*) should be reduced to a minimum on the condition that the others may be called upon to reinforce them in case of need.

(2) As regards personnel—

Air officers possessing some degree of specialist knowledge; officers destined to serve with air units shall be excellent aviators, that is, shall be capable of acting as pilots, observers, machine-gunners, bombers and navigators; they must also possess an adequate knowledge of the methods of manœuvre and of battle of the higher formations of land and sea forces as the result of attachment to those Services and of a higher education at a school for air officers.

(3) As regards material—

(*a*) *aircraft clearly designed for each of the special tasks* allotted to units 1 (*a*) above: day reconnaissance, night reconnaissance, observation and liaison;

(*b*) *fighters* designed for the aerial defence of land, sea and air forces, as well as of the home country;

(*c*) *bombers*, of which an appreciable portion must be "semi-heavy" so as to be suited for the bombing of medium-sized and possibly mobile targets in the zone of the armies, and eventually for strategic reconnaissance.

It is but natural to create in such a special army a force that shall be available to act as an army of manœuvre ready to take action in any one of several theatres of war, to proceed to great distances or to remain within call of land or sea forces, to exert its greatest effort before the land forces should be ready to move, to obtain the maximum results against objectives of national importance to the enemy for the prosecution of the war, namely communications and manufacturing centres rather than against purely military targets.

Such an organization must, with all possible speed, endow the Army of the Air with the means whereby it can utilize its essential qualities: that is all means which will enhance its mobility and power of manœuvre in every possible theatre of war; permit of rapid changes of base; facilitate instant action on the outbreak of war; hasten its supply of fresh equipment under all conditions of warfare; and lastly, obtain the best possible results by reason of the excellence of the personnel and material. The guiding thought, therefore, must be that only those units which possess personnel and material at least as good as those of the enemy will be able to keep the air in war.

An Army of the Air cannot be imagined as existing without land and sea forces; but, of the three Services, it will be the most capable of profiting by the revolutionary progress made in engineering and in the attainment of speed; that is to say it will possess in the greatest measure that potentiality for surprise which is regarded more and more as the most certain condition of success.

LAND MINING IN FRONTIER WARFARE

By Brigadier-General E. B. Mathew-Lannowe, C.M.G., D.S.O.

LAND mining as a means of defence against armoured fighting vehicles is now a fully recognized artifice of "regular" warfare and is increasing in importance proportionately with progress in mechanization. That this method of defence, however, should be encountered in "irregular" warfare has seldom, if ever, been contemplated, and such employment, it is believed, is entirely unprecedented throughout our numerous theatres of irregular warfare. It may, therefore, come as a surprise to many to learn that land mines were used by the tribesmen on the North-West Frontier of India during recent operations as a defensive weapon against armoured cars.

This experience, it is contended, opens up fresh fields for serious military consideration in regard to future Frontier operations, particularly those of a more serious nature during which a considerably increased use of mechanized vehicles of all descriptions may be foreseen. Further, such a consideration must involve fresh administrative problems, especially such as concern lines of communication where, owing to limitations imposed by the natural difficulties of the country and their vulnerability in this guerilla warfare, the tribesmen may reasonably be credited with an early discovery of the advantages to be gained by the use of mines; for in addition to normal problems of mechanization, the natural features of such country provide numerous opportunities for an extended use of land mines to add considerably to the difficulties and obstacles already to be surmounted in Frontier operations.

These unprecedented incidents in Frontier warfare occurred during the minor operations undertaken in the winter of 1930–31 on the Kajuri Plain, near Peshawar, against those sections of the Afridi tribesmen who had been mainly responsible for the raids and attacks on Peshawar during the summer of 1930. This plain, lying only some 15 miles to the westward of Peshawar, is Afridi territory, and provides the winter quarters and grazing for large numbers of Afridis, their families and cattle, who migrate there at this period of the year from the highlands of Tirah, which are then mainly under snow. Owing to the vast number of cave dwellings, the broken nature of the country and its proximity to

Peshawar, the plain forms a convenient and comparatively safe base for the Afridi raiding bands.

Accordingly, one of the main objects of the operations of the Kajuri Force was to deny to these Afridis the use of these winter quarters and grazing grounds, and thus to inflict a considerable punishment upon them and, in addition, to deny to them their usual opportunities of trading with, and obtaining supplies from, British India. To achieve this end, part of the Kajuri Force was located in an entrenched camp at Karawal at the western end of the plain (see sketch map), whence the cave areas and principal grazing grounds could be effectively dominated. A section of armoured cars of No. 1 Armoured Car Coy., R.T.C., formed part of the garrison at Karawal camp and by its constant and very active patrols and reconnaissances assisted very materially in rendering the western end of the Plain uninhabitable to the Afridis while also inflicting appreciable losses on them.

Though the Plain was very stony, covered with a low scrub and much intersected by deep nullas with steep banks and soft shaly bottoms, the cars had a fairly good field of action, though, especially in the earlier stages, they were confined to definite routes in certain areas. These routes became well worn and marked by wheel tracks.

The measure of the success achieved by the armoured cars in these harassing tactics can best be gauged by the steps taken by the Afridis in their efforts to limit the activities of these armoured fighting vehicles. The history of the Great War in respect to defensive measures against armoured fighting vehicles thus came to be repeated by an irregular enemy in an unexpected theatre of war, while it is interesting to observe that the procedure adopted in applying these measures also followed the same course as in the Great War.

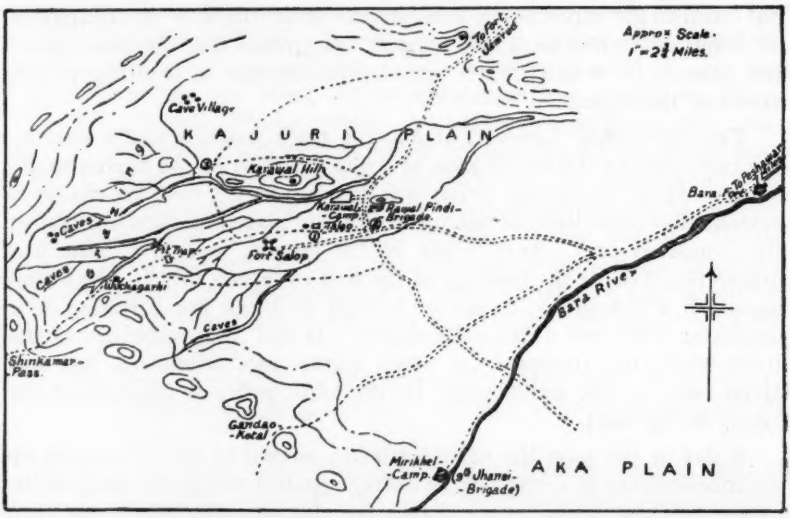
A favourite area of activity of the armoured cars was the neighbourhood of Wucha Garhi, whence a considerable cave-dwelling locality and grazing ground could be effectively watched and commanded. In the early stages the approaches to this area were practically confined to two routes; and since the use of any form of defence against the cars other than rifle fire was never suspected, these two routes were in constant use. Moreover, efforts to find alternative routes and deviations had resulted in numerous casualties to differentials when crossing the soft nulla beds.

One morning the leading car of a sub-section patrol fell partially into a pit-trap not far from Wucha Garhi. The trap had been dug in one of the car tracks, and was cunningly sited in the morning shadow of a scrub bush and concealed by brushwood and stones. As it was only some three feet deep and the car was moving slowly at the time,

the vehicle was not seriously entrapped, and was towed out by its companion without damage.

The instance, however, necessitated future precautions, including the construction of numerous deviations from hitherto constantly used tracks. In making these deviations across nullas, the use of brushwood or cut-down scrub was avoided as much as possible, so that any brushwood or similar signs on a track or route could in future be treated with suspicion.

Only one other trap, of similar construction, was found, and this was spotted by means of its brushwood covering. This method of defence had thus failed, just as the first method of anti-tank traps employed



by the Germans in the Great War had failed. With regard to this failure, however, it is to be noted that the conditions of this more or less open plain were not favourable to the employment of this type of defensive measure, and that the more confined valleys often met on the Frontier would possibly offer better opportunities for its use.

Finding that this effort did not produce the desired results, and presumably also realizing that the gradually increasing area of armoured car activities rendered such a form of defence still more unlikely to succeed, the tribesmen took the next step possible to them—since they had no anti-tank weapons—namely land mines. Further, they gave their attention mainly to areas where they could hope for more certain results, i.e. as close as possible to the exits from the camp. In this

connection they were much assisted by the free movement which had to be granted to certain " political informers " or agents who resided at Wucha Garhi, and who were thus able to watch closely the exits and routes most frequently used by the cars. That these " informers " were serving two masters at the time, and in this particular connection, was definitely proved later.

One morning a ration lorry returning from Fort Salop to the camp was suddenly blown up when turning at a track junction close to a *talao* (rainwater pool) situated about 1,000 yards from camp (marked (1) on sketch map). Fortunately the damage was comparatively slight, one front wheel being destroyed and the engine sump blown in, while the driver escaped injury. At this period the cause of the explosion was put down to the exposure, by constant use of the track, of an unexploded air bomb which had sunk into the soft wet ground near the *talao* during the summer, at which time a considerable amount of bombing in this area had taken place.

Two days later, however, at another track junction much used by the cars, and to the South-East of camp (marked (2) on sketch map), a horse in an exercising string was blown up. It now became very evident that some form of mining was taking place and directed against the armoured cars. As a result of the ensuing search, a mine was discovered close to the position of the first explosion at (1). On examination it was found to consist of a small 20-lb. air bomb resting on a detonator fixed into a dynamite charge. It had been embedded in the track where the armoured car wheel marks were prominent, but was given away to the search party by the hand and foot imprints of the layers in the dust.

A day or two later the Afridis gained a partial success in blowing up an armoured car at a small defile during a patrol well to the west of the camp—marked (3) on map. Again the damage was mainly confined to one front wheel, though the driver sitting on the floor boards had an extremely narrow escape. The car was able to return to camp with the help of its companion car. No other mines were encountered or discovered.

Nevertheless, the situation, besides being decidedly unpleasant, caused some anxiety, since it was extremely difficult—if not almost impossible—to search and to guard continually and thoroughly the very large area in any part of which mines could have been laid to hamper the movements of troops and transport as well as of armoured cars. There was also a definite danger to the daily maintenance convoys from Peshawar, and these had to be delayed until the most dangerous portions of their route had been searched by the road protection troops. But " it is an

ill wind," and joy-riders were conspicuously absent from visits to Karawal camp for some little time !

Anti-Mining Measures.

On the principle of " passing it on "—to make use of General Sir Andrew Skene's expression—it would appear of value to narrate briefly the measures taken to meet and to defeat this situation.

The first steps had undoubtedly to be directed towards the discovery of the individuals responsible for the mines and of their stores of material. Consequently, the following initial measures were taken and met with immediate success :—

(*a*) As previously mentioned, the discovered mine was detected by handmarks and footprints in the surrounding dust. The latter included the imprint of old Dunlop and Goodrich motor tyres, used for soling *chupplies* or sandals. By this means the track of the minelayers was accurately traced towards Wucha Garhi. A *chappao*, or surprise party, was at once stationed at night on this track ; it would have scored a complete success had not the minelayers been accompanied by two dogs, which gave warning of the presence of the troops and thus enabled timely escape. Similar surprise parties were put out nightly in various directions, and trip-wires, connected with instantaneous grenades, erected at other likely places, but nothing further was seen of the minelayers.

(*b*) An early search of Wucha Garhi and the caves in its vicinity resulted in the discovery of a small store of unexploded air bombs.

(*c*) An Afridi who was undoubtedly reconnoitring a distant armoured-car track for suitable minelaying purposes was shot, together with the two dogs which accompanied him. He was wearing Dunlop soles on his *chupplies* and had been one of the " informers."

It was certainly due to the combination of these three immediate measures that all further mining ceased. Certain other measures were also taken which, briefly, were as follows :—

(i) The dusty sides of likely tracks and roads within a mile or so of camp were smoothed over by means of sandbags dragged along them under cover of darkness. The early morning search parties were thus assisted in detecting movement.

(ii) Roads which had been " shingled " (loose metalling) were closely examined with small wire prongs.

(iii) A roller was constructed with corrugated sheet iron and concrete with the intention of pulling it along the shingled roads by mules and thus to explode any mines. But this was never used, since by the time it was ready it had been judged that the first three measures had had the desired results.

Thus ended the first experience of the use of land mines as a weapon for combating armoured vehicles in Frontier warfare. Though the methods of employment of the weapon were somewhat primitive, if judged by present-day standards, and the success achieved was insignificant, yet it was an endeavour which must be given its full measure of credit, particularly in regard to future possibilities.

Future Developments.

Though their general methods of conducting war have changed but little during the past decade or more, the tribesmen have taken every advantage offered to them by improved armament and by military knowledge gained by many during some form of military service. It can be claimed that the operations now briefly described are the first during which armoured fighting vehicles have been systematically employed against the tribesmen, for, in addition to the patrols and harassing tactics mentioned, the armoured cars were also extensively used with much success in all tactical operations. The tribesmen were not slow in devising means of meeting this new arm, and it would be unwise to conclude that, though they met with little success on this occasion, they will not profit by the experiences gained, especially as the employment of mechanized forces against them increases.

Large numbers of tribesmen are being continually employed on road construction work throughout the Frontier and thus come into close contact with the use of explosives. Moreover, there is little difficulty for them to procure explosives and other necessary material from British India or elsewhere. Lastly, outside assistance is far from unlikely—in brains as well as material. To those who have experience of Frontier country it will not be difficult to visualize numerous occasions and situations when land mines would form a serious problem to the progress of operations. It will be across the border, perhaps, where the greatest problems are likely to arise and to which the greatest attention should be directed. Without attempting to examine such situations, the opinion of the writer is :—" Coming events cast their shadows before."

THE NAVY RECORDS SOCIETY

By Admiral Sir Herbert W. Richmond, K.C.B.

THE Navy Records Society was founded in 1893, its first volume appearing in 1894. It was a practical expression of that revival of naval history started by a great Englishman, Sir John Laughton. This revival was no mere dry-as-dust business or process of academic antiquarian research, interesting to professors and to no one else. It was a revival of learning, of a very practical kind, concerning the manner in which the Navy performed its tasks in the great wars in which the Empire was founded and fought for.

In the eighties of last century Sir John Laughton read a paper at the Royal United Service Institution on the value of history to the naval officer. The value of history to military officers had for long been a commonplace, but this idea that it could serve the Navy was a new one; for naval minds had been concentrated, since the days of the attacks on the batteries at Kinburn, upon the great and absorbing problems of new forms of ship construction. Laughton's paper happened to fall into the hands of an American naval captain, who, until he read it had not given a thought to history. The views of the value of history which he found in the paper made him resolve at once to take up its study, and the result of that study was a book called "The Influence of Sea Power upon History." The Captain was A. T. Mahan.

"The Influence of Sea Power upon History" made its appearance in 1891. Few books have had more effect upon the world than that work. It awoke the minds of statesmen to what sea power meant. Brilliant however, though the generalisations drawn by Mahan were, they suffered from one defect—that the authorities upon whom Mahan depended for his facts were incomplete. Few of them had based their own records upon original documents. The reasons why squadrons or fleets were given particular tasks were unknown. The instructions upon which Admirals acted, the intelligence of the enemy and other matters they possessed, the numerous and varied conditions which affected the decisions they made—weather, climate, sickness, want of stores, shortage of men, political and commercial pressure from local dignitaries, the military situation on land—all these and others, which form the practical elements in a military problem, were hidden. The writers who had

never read the instructions to the commanders, the correspondence between ministers leading to those instructions, the letters from the Admirals reporting what they had done and why they had done it, the logs and journals which give the facts of position, wind, weather and speed, could give but academic and partial accounts of the proceedings—accounts which omitted the vital and fundamental elements in war.

It was the realization that information was lacking for a sound naval history, in which the two all-important factors of motive and object were clearly exposed, that led Laughton to propose the formation of a Society which should furnish the necessary raw material. The idea was enthusiastically received by those who had the interests of the Navy at heart. The Councils of the Society during those early days included Lords Spencer and Northbrook, holders of the Office of First Lord, and the Board of Admiralty and the Flag Officers afloat were strongly represented by Seymour (Sir E.), Vesey Hamilton, Richards, Fanshawe, Bridge, Fremantle, Hoskins, Bedford, Battenberg, Markham, Custance, Colomb, Bowden-Smith, Wharton, May. Historians have included Firth, Gardiner, Corbett, Newbolt, Prothero, Burrows, Atkinson, Browning; and among the writers and students who have lent their services to the Council there have been Kipling, Lord Sydenham, Lyall (Sir Alfred), Thursfield, Hannay, and Sir William White.

The Society, with the support of such distinguished statesmen, seamen, and public men of varied interests and great attainments, set out to carry into effect the ideas promulgated by Laughton, in the conviction that we could best learn the uses of a navy if we knew how a navy had been used. Their object was to publish original documents, explaining the situations to which they referred, and thus to provide that raw material of strategy the importance of which has been so fully urged by military men from Frederick the Great to Foch.

If we glance at the list of the volumes the Society has provided, we shall get some indication of the work done, though not of the full worth of that work, to the country and the Navy.[1]

The papers on the Spanish Armada and the exhaustively annotated Naval Tracts of Sir William Norines threw a new light upon the Elizabethan period. Corbett's "Fighting Instructions" and its sequel "Signals and Instructions" constituted a revelation of the tactical ideas of the utmost value. The Barham, St. Vincent, Spencer and Keith papers are essential for any study of the periods they cover: while the Sandwich papers, of which two volumes have appeared, throw a new light upon a very dark and often misrepresented period.

[1] There is a complete set of the Society's publications in the Institution's library.

There is a great deal of naval history in need of rewriting to-day. Though we have several valuable popular histories, we lack correct information about many of our wars. The Second and Third Dutch Wars, the Wars of the League of Augsburg, and the Spanish Succession, the War of the American Revolution, and that long struggle between 1805 and 1815, have not yet been thoroughly examined and analysed. Nor have we any modern histories of the Russian War of 1854-5, of which, in its naval element, we know very little.

Thus, it is sincerely to be hoped that the Navy Records Society will receive the increased measure of support of which it is in need. It fulfils a definite purpose. It has added materially to our knowledge of both strategy and tactics, of life and administration in the Navy and—by no means least—of general history a portion of which naval history is an important part.[1]

[1] Particulars of membership and of the Society's publications can be obtained on application to the Secretary, Navy Records Society, Admiralty, S.W.1.

RICHARD KEMPENFELT

A GREAT CHIEF OF STAFF.

By Vice-Admiral W. M. James, C.B.

THERE are few people who do not get pleasure from books that conjure up the great personalities of the past. For the majority this is a fortunate age; our interest in that long procession of emperors and kings, queens and courtesans, generals and statesmen, who have passed across the stage is every day quickened by the appearance of some book written by a master hand and reflecting untiring labour in research. Nelson, of course, could not escape the attention of this brilliant group of writers, but the personality and intimate life of other great Sea Captains has not yet been subjected to a friendly microscope, and may never be for lack of material. Nelson poured out his heart in his letters; but, though many other famous commanders' letters are preserved, they are rarely of an intimate character and are an inadequate reflection of personality. The great houses of England, the State papers, and various other archives can reveal their treasures when a Marlborough or a Charles II are about to be reincarnated; but the names of Hawke, Hood, Howe, Kempenfelt are not to be found in those precious documents. Yet there is just enough to whet the appetite, just enough to show that these latter, too, were no ordinary men.

Hawke, Hood, Howe—these are household names; they are associated with important victories. But Kempenfelt's name is only familiar because the foundering of the "Royal George" attracted the dramatic instinct in Southey; yet there can have been few men who achieved so much and who have had such a lasting influence on the Royal Navy. His career was cut short when he was universally recogniżed as the leader of thought in the Service, and when his genius for reform had touched every ship and every shore establishment.

Kempenfelt came of distinguished stock. His father, Magnus Kempenfelt, a native of Sweden, followed the fortunes of King James II, and was afterwards invited by Queen Anne to accept a commission in her service. In the reign of George I he was Lieutenant Governor of Jersey, and he died whilst in office in 1727. It is evident from the writings of Addison and Steele in the *Spectator* that this Magnus

Kempenfelt was an unusual personality. It was he who supplied the traits of "Captain Sentry," whom they both delighted to honour. Addison wrote of him: "A gentleman of great courage, good understanding, and invincible modesty . . . He was some years a captain and behaved with great gallantry in several engagements and several sieges. . . . I never heard him make a sour observation . . . The military part of his life has furnished him with many adventures in the relation of which he is very agreeable to the Company; for he is never overbearing, though accustomed to command men in the utmost degree below him; nor ever too obsequious from a habit of obeying men highly above him." He left a widow and five children, the youngest of whom was Richard, who was nine years old at his father's death.

Richard had no intention of adding to his mother's difficulties, and we find in the Admiralty Records that he was entered on 20th October, 1727, as a Volunteer in H.M.S. "Lyme." For ten years he served in that ship, a small 20-gun vessel on detached service in the West Indies. The next entry is as A.B. in the "Hampton Court," flying the broad pennant of Commodore Browne, Senior Naval Officer at Jamaica. He was promoted to Midshipman in July, 1738. We can imagine him through all these unadventurous years pining to see active service but accepting the lack of opportunities with resignation and working tremendously hard at his chosen profession. But now the days of hoping and waiting were over and he was to have his first taste of serious business.

Admiral Edward Vernon, having declared in Parliament that the Spanish possessions in the West Indies could be reduced with great ease and that Puerto Bello could be taken by a force of six ships of the line, and Admiral Vernon also being a troublesome Member of Parliament, the Government entrusted him with the expedition. He reached Jamaica on 23rd October, 1739, and was joined there by the "Hampton Court."

In Vernon's instructions for the attack, the "Hampton Court" was given an important role. "And as the North shore of the harbour of Puerto Bello is represented to the Admiral to be a bold steep shore on which, at the first entrance, stands the Iron Castle, Commodore Brown, and the ships that follow him, are directed to pass the said fort within less than a cable's length distant, giving the enemy as they pass as warm a fire as possible both from great guns and musketry. Then Commodore Brown is to steer away for the Gloria Castle and anchor as near as he possibly can to the eastermost part of it for battering down all the defences of it," stirring, martial orders which we can be sure made young Kempenfelt's blood run faster. The "Hampton Court" carried out the first part of her task with great gallantry, but owing to the wind failing she had to anchor and forego the attack on Gloria Castle. Early

next morning the Admiral, after consulting the Commodore, ordered the ships to warp themselves to Gloria Castle during the night and attack at daybreak ; but the Spaniards had had enough and the appearance of the white flag robbed young Kempenfelt of a second dose of close-in fighting.

His baptism of fire had been severe and no doubt whetted his appetite for more, but he had not long to wait. Though, by transference to the " Princess Louisa," he missed Vernon's first bombardment of Cartagena, he was able to take part in Captain Knowles' attack on Chargres. In January, 1741, he was promoted Lieutenant, and in the " Strafford " took part in the combined operation against Cartagena in March. In this operation he gained his first experience of landing troops in boats against opposition. No doubt he also took notice of the paralyzing effect of quarrels between the naval and military commanders on these occasions.

After Cartagena, Kempenfelt was transferred to the " Superbe " of 60 guns, and during the next year to the " Seahorse " frigate. Fighting was over for the time being, and for the next few years he was leading a life of peace-time routine. By 1755 he was First Lieutenant of the " Orford," 70 guns, and in 1756 he was Master and Commander of the " Lightning " fireship ; all rather dull, perhaps, but he was rising steadily in his profession and gaining experience in every type of ship.

The " universal and perpetual peace " of those finely phrased XVIIIth century treaties never lasted very long, and whilst Kempenfelt was still in the " Orford," Captain Richard Howe, off Newfoundland, fired the first broadside of the Seven Years' War.

Kempenfelt no doubt was longing to cross the Atlantic, but he was destined for another part of the globe where some of the fiercest fighting recorded in naval history was about to commence. In 1757, Commodore Stevens asked him to come as Flag Captain of the " Elizabeth," under orders to join Admiral Pocock in the East Indies. A month after their arrival on the Station, Pocock commenced operations against Comte D'Aché, and in April the rival fleets met off Cuddalore. The " Elizabeth " in the van behaved magnificently, and her Captain must have been delighted with the fighting spirit of his officers and men. His presence on the poop doubtless inspired them to greater efforts. D'Aché broke off the fight in the evening, having lost 162 killed and 360 wounded; the British loss was 29 killed and 89 wounded—surprising figures considering the fleets were approximately of the same strength. By August they were at it again, hammer and tongs, off Negapatam. This time the " Elizabeth " led the fleet into battle, and having driven her first and bigger opponent out of the line, set about another big ship and gave

her a drubbing. Once again D'Aché broke off the action. This was a bloody fight, the French lost 250 killed and wounded but the British only 31 killed and 166 wounded. There was little rest in that famous Indian Ocean duel. Soon after the New Year, Kempenfelt was detached on special service with two 20-gun ships and six smaller vessels. His orders were to raise the siege of Madras, and the day after he arrived De Lally marched away. The third classic encounter between the fleets took place in August of the same year off Pondicherry.

By this time Kempenfelt had moved with his Commodore, now a Rear-Admiral, to the 68-gun " Grafton," and once again it was his ship that fired the first shot. This was one of the most furious sea battles ever fought. The French lost 1,500 killed and wounded, the British 569. After these tremendous events, Pocock returned home and Stevens took over the command, hoisting his flag in the " Norfolk." Kempenfelt, of course, went with him. The little squadron never paused. A violent hurricane off Pondicherry in January, 1751, gave Kempenfelt the opportunity of proving his capacity as a seaman. He saved his ship, when four line of battleships were dismasted and five vessels were lost altogether; moreover, in two days' time, the squadron had resumed the blockade. In August the squadron was off Manilla, and we find Kempenfelt in command of a flotilla of boats for the final assault.

This brought a period of great achievement to a close and Kempenfelt was sent home with the despatches. During those stirring years he had fought his ship in three of the bloodiest actions in history; he had twice led the fleet into action; he had been three times mentioned in despatches; he had been charged with an independent operation which had far-reaching consequences to the land campaign; and he had organized and led a boat attack. No wonder his name was on everybody's lips.

For a short time the signing of " perpetual peace " brought relaxation; but four years later a little flickering flame on the American seaboard was so assiduously fanned by poor statesmanship that eventually it burst into a mighty conflagration, and ere long England was threatened by the armed forces or the unfriendly neutrality of all Europe. By a miracle she won through against this ring of powerful enemies, although she lost her American Colonies for ever. In such dangerous times it might be expected that the Channel Fleet, which alone stood between England and invasion, would be commanded by a man of vigour and professional skill. For a short time it was; but when in 1779 Keppel, disgusted at his treatment after the battle of Ushant and unappeased by a remarkable demonstration of popular approval, resigned the command, the Admiralty appointed old Sir Charles Hardy, Governor of Greenwich Hospital, to succeed him. Perhaps the authorities realized

that this old infirm man would need strong support; perhaps the merits of Kempenfelt had filtered through to the quiet shades of Greenwich Hospital; it is said that Sandwich chose another officer who unselfishly refused and pressed Kempenfelt's claims. Whatever the reason, Kempenfelt was appointed First Captain, and with that appointment commenced the great period in his life—the period when he exercised immense influence on naval affairs, the period when all the earlier years of hard work, study, and clear thinking reached a climax, which astonishes by the magnitude of the achievement. Only a man of redoubtable determination and great force of character could have carried through that all-embracing reform programme in the utterly disheartening atmosphere he lived in. He could expect no support from either Hardy or his still less effective successor, Geary; all they wanted was to be left alone. The times were serious. A Franco-Spanish armada might appear at any moment in the chops of the Channel; it was vitally important that the relatively weak Channel Fleet should be brought up to a pitch of efficiency.

By July, Kempenfelt was growing anxious: "my situation is extremely disagreeable; I would give all the little I am worth to be out of it. Does the people at home think the nation in no danger? Where is Lord Howe at this alarming period? I can't say more; you'll divine the rest." By August his patience was becoming frayed: "the confused conduct here is such that I tremble for the event. There is no forethought, therefore no events provided against; we are every day, from morning till night, plagued and puzzled in minutiae, whilst essentials are totally neglected. An odd obstinacy and way of negativing everything proposed makes all advice useless." And a little later: "a man who never thinks beforehand, and therefore is always under the confusion of a surprise when anything happens, always in such a hurry when he takes in hand to do anything that he never does it; puzzling himself and all about him in little detail minutiae, whilst essentials are never thought of. . . . It is with the greatest difficulty I can ever prevail upon him to manœuvre the fleet; he is always so impatient and in such a hurry to get to the westward, to the northward, or the southward, that he won't lose time to form a line." These extracts are, of course, from very private letters. Outwardly he managed to maintain a relationship which, if not cordial, was workable. "As to Sir C. I have not, nor never had, any variance with him."

In May, 1780, Hardy died. His early career had been honourable and distinguished, and he had fully earned his preferment as Governor of Greenwich Hospital. Dragging him out of retirement and submitting a man of his infirmities to the stress and anxieties of a Commander-

in-Chief of the principal fleet in war-time was little short of cruelty. He could hardly have lasted as long as he did if Kempenfelt had not been beside him. He was succeeded by Admiral Francis Geary, but this meant little change for Kempenfelt. Perhaps he experienced less obstinacy and less fuss about minutiae, but he cannot have received much encouragement from this frail old man of seventy. " But a man who has no opinion of his own, but acts from those of others, can never act regular and consistent." That was written in July, and a month after when the strain was beginning to tell, Kempenfelt wrote " the present person is brave, generous, and may perhaps have been a good officer ; but he is wholly debilitated in his faculties, his memory and judgment lost, wavering and indetermined in everything." A pathetic figure, thrown, probably against his wishes, into a world of bustle and into a position of immense responsibility. He landed in August, intending to return ; but the fatigue of the whole business had been too much for him. A Captain who visited him at his home wrote : " the Admiral will hardly be sound enough for another year ; he seems tottering and training towards childhood again."

Kempenfelt, too, was beginning to feel fatigue. " I begin to grow sick of everything and particularly my employ ; I am grown too old " ; and when he knew Geary would not return " I hope this will relieve me of my present employ, which is too much fatigue for my years." We can only marvel that he stood it so long and that he fell in with Lord Sandwich's request that he should continue as First Captain when Vice-Admiral Darby was appointed to succeed Geary ; he served Darby as First Captain until he was appointed to a separate command in November, 1781. Darby was a man of very different stamp to his predecessors, so for a short time Kempenfelt carried on his work in more congenial surroundings.

This, then, was the atmosphere in which he lived. Now let us look at his achievements. One of his first concerns was the inadequate docking facilities. He found that fine ships returned home with few defects and were left so long before being taken in hand that decay had set in and they were not worth repairing. There were too many building slips and too few docks : he put forward a scheme for remedying this. He took up the whole question of shipbuilding, and whenever a ship showed poor sailing qualities he went into every detail and explained to the Admiralty how matters could be improved. In one letter he is recommending the roughing of composite nails for greater security ; in another explaining an improved method of working tiller tackles ; in another showing exactly why the new 74-gun ships are not handy under sail, giving measurements of all parts of the hull and deducing the cause

of failure. He entered keenly into the controversy about frigates—whether they should be two-deck 40-gun or single-deck 38-gun vessels, and marshalled all the arguments in an important letter to the Admiralty. He saw clearly that the constructors of the day were inefficient, and he proposed two remedies; the first was that design should be put out to competition so as to "excite genius"; the second was that an academy for educating constructors should be opened so that they would in future work "with a good foundation of mathematical knowledge and not from guess-work." He was wholly conscious of the lack of any tactical doctrine. As a member of the Court that tried Admiral Palliser he was intimate with the details of the battle of Ushant, and he was convinced that more attention should be paid to depriving the enemy of mobility by firing at masts and rigging. He recommended for this purpose a supply of langridge shot, which would have a greater tearing effect than grape. He likened a fleet acting under a regular system of tactics to an army of regulars, and one without any system to raw militia. He forced on the attention of his superiors the important role of fireships in action. He disagreed with the theory that fireships should not be used till the enemy fleet was disabled. He prepared a plan for breaking the enemy line during day action under cover of a smoke screen. Believing firmly in the value of speed, he pressed hard for all ships to be coppered. He was fully alive to the value of surprise, and when the Franco-Spanish fleet appeared off Plymouth he wished to disguise fireships as luggers and cutters, and send them in "under the management of some bold sensible man."

Kempenfelt was a master of fleet work. He made plans for a proper organization of the fleet in divisions and sub-divisions, and drew up a book of "movements and evolutions" so that "all Captains may be acquainted with the manner and co-operate suitably." He advocated strongly that cruisers should always work in pairs. As a corollary to all this, he set about instituting a proper system of signals. He attacked this subject with great vigour and went into the most minute detail. He experimented with various sizes and colours, and never rested till he was absolutely satisfied he had got the best thing. He gave the Royal Navy its first adequate signal book, and he introduced a better form of night and fog signals.

His interest in personnel was just as great. Nothing escaped his notice. Finding that when the ships were cleared of chests on going to sea there was no proper stowage for the men's kits, he arranged for kit-bags to be issued. He recommended a divisional system so that the officers "would become acquainted with the character and behaviour of each individual." He insisted on smartness of appearance, a uni-

formity in dress, and a weekly muster of kits. He made a point of ensuring proper meal hours and proper times for washing and mending clothes, but saw to it that the men were constantly employed in working hours. He introduced short prayers at divisions as a feature of the daily routine. He took up the whole question of training with the same enthusiasm; admiring the sail drill in the French fleet, he was determined to equal or better it. He introduced seamanship and gunnery training classes for the "young landsmen," and also the training of the small arm companies afloat and on shore. "They should know how to form men for marching; for attacking or defending themselves when on shore with a body of men; they should know the advantage to be made of ground by possessing heights, hedges, houses, walls, etc.; the advantage of covering their front or flanks with rivers, ponds, morasses or woods; how to intrench or form a redoubt." He arranged for the Marines, when in barracks, to be taught the management of artillery so that they could take their place at the "great guns" in action.

The health of the fleet was one of his chief concerns. He was dissatisfied with the conduct of Haslar Hospital, and drew up proper regulations and, when the fleet was stricken with scurvy, he persuaded his Admiral to divide it into squadrons and send them to different ports so that the sick could be landed under canvas.

The gunnery of the fleet was tackled in the same spirit. He urged on the Admiralty the importance of proper gun trials when a new type appeared. He covered the whole field of ballistics in his memoranda, and advocated changes in the weights of powder and shot. He wrote at length on such details as the breechings and the carriages. At another moment he is urging the adoption of a new compass, and explaining in detail its advantages over other types.

The record of his activities is one of tireless energy, and betrays a wealth of knowledge with clearness of vision. No wonder Hardy was glad to have him; no wonder Geary wished to keep him; no wonder Sandwich asked him to stay on with Darby. His work as First Captain still survives: whenever "divisions" are sounded off, morning prayers said, bags mustered, training classes fallen in, small arm companies landed, signals hoisted, a patient enters Haslar Hospital, the fleet is exercised at tactics, or when the young constructors are poring over their books at Greenwich, the shade of Kempenfelt is there. He was, indeed, a great Chief of the Staff.

He was promoted Rear-Admiral in September, 1780, but he had to wait till November, 1781, for his first independent command. Then he was appointed to command a squadron and hoisted his flag in the "Victory." He had not long to wait for a chance of showing his mettle

as a squadron leader. The French East and West Indian homebound convoys were expected in December, and Kempenfelt was ordered to operate against them with his twelve sail of the line. The British strategy on this occasion was wretched. It was known that de Guichen with his fleet of at least eighteen sail of the line would be acting as escort to the convoys but, though there were several ships fitting out for the West Indies and several more lying in the Downs, no attempt was made to strengthen Kempenfelt's force. To add to his difficulties, the authorities could only find two frigates for him and, in view of his inferiority, frigates were all important. " I needn't notice to you," he wrote, " the necessity of a number of such upon the service I am going on." But having made his protest he was off as quickly as possible, and as Middleton truly said, " had a man of less activity than Admiral Kempenfelt been appointed to command, the squadron would not have got to sea in time for any service nor have ventured an attack in the face of so superior an enemy."

On 12th September, when 150 miles South-by-West of Ushant, he sighted the convoy and de Guichen's fleet. He quickly appreciated the situation, and with his trained seaman's eye saw that he could pass between de Guichen and the convoy and have time to make captures. He formed his ships, spread a full press of canvas, and very soon the ships of the convoy were hauling down their colours around him. He returned triumphant to England with nineteen valuable prizes as a result of this brilliantly executed operation.

Then came that unfortunate change of flagship from the splendid " Victory " to the unseaworthy " Royal George," whose timbers were rotting and whose state was well known to the Dockyard authorities. It was the irony of fate that this man who had laboured unceasingly to reform abuses should have fallen victim to one of the administrative shortcomings he had struggled against. It was not Southey's breeze that drowned Kempenfelt and all those others; it was the rotten state of the hull, as the members of the court martial soon discovered.

His first request in his will was that he should be buried in the simplest and least expensive manner. He was ever a man of simple tastes, and his devoutness and belief are revealed in a book of hymns which he wrote during those arduous years of service and which was published after his death. As his epitaph, it would be hard to improve on these three lines from the *Gentleman's Magazine*:—

> " Perhaps there has been no officer who ever served in the British Navy who has left so high a character for every trait which can adorn the man and the officer."

BATTLE HONOURS[1]

THE HISTORY OF THEIR AWARD

By MAJOR T. J. EDWARDS, M.B.E., F.R.Hist.S.

THERE is an oft-told tale that a gunner and an infantryman fell to bragging about the merits of their respective corps when the latter, on being worsted, dug himself into his last ditch and dumbfounded his companion with the statement: "Look at our battle honours; we've got dozens, an' wot 'ave your crush got—one mouldy one 'Ubique,' and no one knows where that —— battle was fought." This may not be a representative specimen of the prevailing ignorance of Service men in regard to battle honours, yet statements just as far from the point on various aspects of the subject are by no means uncommon. This is rather surprising when it is remembered that battle honours is a subject which is evergreen. The seat of the trouble is most likely to be found in the practice of regiments accepting, without question, some tradition which has grown up round certain actions in which their regimental forebears distinguished themselves. Before the Great War many regimental histories were little more than propaganda built up on the principle of "it pays to advertise," and quite minor incidents were written up in a manner out of all proportion to their real value in the general action. But now that so many excellent military histories are available there is no excuse for relying upon unverified tradition.

Nevertheless, the student of military history will be somewhat bewildered when he compares the record of victories of the XVIIIth and early part of the XIXth centuries with the manner in which they are reflected in the battle honours on regimental colours. Several regiments may have obtained equal commendation from a Commander-in-Chief in his despatches, but not all can show the battle honour for the action. Such a system or lack of system of granting honours was bound to lead to anomalies, a fact which the authorities recognized when the

[1] A War Office letter—published at the end of this article—has recently announced that the Honours and Distinctions Committee is to make a comprehensive review of all further claims to honorary distinctions in commemoration of operations, with the hope of securing finality.

This article deals with the history of previous Committees and awards. A further article in next quarter's JOURNAL will deal with omissions in existing honorary distinctions.—EDITOR.

first committee, i.e. the Alison Committee, of 1882, dealt with the subject. Early committees were very often hampered by lack of precise information regarding certain actions; very often this information was locked up with the private papers of the Commander-in-Chief or some other high official and not accessible at the time. For instance, the order of battle for Oudenarde (11th July, 1708) could not be found by Sir John Fortescue, which led him to state erroneously that it did not exist.[1] It did exist but was not discovered until 1914, when it was found by Colonel C. T. Tomes mixed up with some old family papers. Many biographies and private journals of important persons have been published during the last few years when, in some cases, useful information concerning actions has been revealed.

The practice of making awards in recognition of good work is very ancient; Pharaoh gave Joseph a chain of gold and a ring because he interpreted his dreams; good military service in Biblical times was sometimes rewarded by the award of golden buttons. In Roman times legions or units which distinguished themselves in a certain country or province were permitted to add the name of that country or province to their title. Coming down to later times, in Great Britain we find a system of making awards not very dissimilar to that which obtains at present. In the age of chivalry the nobility were rewarded for good service in battle by the grant of additions to their armorial bearings.[2]

These grants were called "Augmentations of Honour," and the idea at the back of granting battle honours to regiments is identical with that by which such grants were made.

The first battle honour, or "honorary distinction" as it is officially styled, was that awarded to the 18th, or Royal Irish Regiment (disbanded in 1922) by William III, in recognition of its services at the Siege of Namur, in 1695. The award took the form of one of William's badges, the Lion of Nassau, with the motto "*Virtutis Namurcensis Præmium.*" The next grant was made to the 15th Light Dragoons (later Hussars):[3] it took the form of the name of an action, "Emsdorff"

[1] "History of the British Army." By Sir J. Fortescue. Vol. I, page 501.

[2] Thus, the Black Prince conferred a crest upon Sir Richard de la Bere as a memorial of his gallant conduct at the battle of Crecy in 1346. Again, Henry VIII granted the Earl of Surrey a crest for commanding his army at the battle of Flodden in 1513; and George III rewarded the great Duke of Wellington with a crest for his illustrious services. This crest was the Union Badge (without the Imperial Crown) charged upon an excutcheon and displayed in the chief point of the Duke's paternal shield.

[3] The 15th Light Dragoons had been raised by Colonel G. A. Eliott (later Lord Heathfield) in 1759, so that it was in the first year of its existence that this regiment distinguished itself in action.

(16th July, 1760), and in the Royal Warrant for Clothing dated 1st December, 1768, it is the only regiment to receive such a distinction. The grant of the next honour is also associated with Eliott, for it was whilst he was Governor of Gibraltar that the French and Spanish besieged that fortress (1779–83), and under a Horse Guards letter dated 28th April, 1784, the honour " Gibraltar " was granted to the regiments which took part in the defence.

The British Army seems to have led the way in the practice of inscribing names of battles on regimental colours. In the French army the earliest battles to be commemorated are Jemappes and Valmy, which were fought in 1792 ; in the old German army the earliest was the honour for the defence of Kolberg in 1807 ; the Honourable East India Company's earliest grant was for " Assaye " (23rd September, 1803) made in 1807.

Although the badge granted for Namur, 1695, and the distinction " Emsdorff," were the first of their kinds respectively, the earliest campaign, chronologically, to be commemorated is " Tangier, 1662–80, an honour granted to the 1st The Royal Dragoons and The Queen's Royal Regiment (West Surrey).[1]

The grant of battle honours falls into six main periods, each of which will be briefly described. The honours take various forms, but this aspect of the subject apart from battle honours, strictly so called, requires special and separate study. The official generic term for them all is " Honorary Distinctions."

The Early Period.

Following on the grant of " Gibraltar " in 1784 the next award was made in 1801 to commemorate the battle of Minden, fought on 1st August, 1759. This indicates a " looking back " over past achievements and some recognition of the importance of the subject. This was followed in 1802 by the grant of the Sphinx, superscribed " Egypt " for the 1801 Egyptian campaign under Sir Ralph Abercromby. The grant following so closely on the conclusion of this campaign appears to confirm the assumption that the subject of battle honours was gaining further attention. This view is supported by the next grant, " Maida," for the action fought on 4th July, 1806, the grant being made on 24th February, 1807. The first military gold medal was granted to commemorate Maida, which is unique in that it is the first campaign to be commemorated officially[2] by both a Colour honour and a medal.

The main difficulty with regard to the grant of honours during this period is to discover the rules or principles which governed them. In

[1] Granted under A.O. 180/1909.

[2] Regimental medals had been granted for Eliott's defence of Gibraltar.

the case of the 11th Hussars there was only one squadron of the regiment in the Egyptian campaign, but it was granted the honour. The grant was made three months after the general grant, which looks as if an exception was made in their case for some particular reason.

The Peninsula Campaign opened two years after Maida, but the first battle honour for an action of that campaign does not appear to have been granted until the war was four years old: it was "Corunna" granted to the Grenadier Guards on 5th March, 1811, for the action fought on 16th January, 1809. No less than twenty-four honours were granted for this campaign, yet with the exception of the general campaign honour "Peninsula" none were general grants, regiments apparently being left to make application as the spirit moved them. The rules which governed these grants have not been traced, but there seems to have existed some connection between the grant of medals and honours as is shown in the following extract from a submission to Queen Victoria in 1844 on behalf of the 62nd (Wiltshire) Regiment: "it appearing that the officer who then commanded the regiment, the late Major-General Nathaniel Blackwell, received a medal for his services on that occasion." The honour was granted. This assumption does not extend to all battle honours for the Peninsula Campaign in view of the fact that although "Arroyo dos Molinos" was granted to the 34th (Border) Regiment in May, 1845, no medal was granted for the action. The unique circumstances in which the 34th obtained this honour are worth recalling. The action took place on 28th October, 1811, when the French were surprised and lost heavily, the British 34th capturing the French 34th, together with their drums and drum-major's staff. The British 34th were given permission in 1836, at a time when all the other regiments were wearing white plumes, to wear a plume of red-and-white, as had been worn at the Battle in 1811. In 1843 the tufts of all other regiments were altered back to the old colours of red-and-white, causing the 34th to lose their distinction; as a compensation for this loss they were granted the honour "Arroyo dos Molinos." On every anniversary of the action the drums and drum-major's staff of the French 34th, which are now in the possession of the 1st Battalion, The Border Regiment, are paraded, the drums are played and the staff is carried by the smallest drummer-boy in the battalion. The uniform of 1811 is worn on these occasions. The regimental march of The Border Regiment combines the marches of the British and French 34th Regiments.[1]

[1] It may be noted that "Arroyo dos Molinos" does not exist; the correct name of the place is "Arroyo Molinos," meaning "stream of the mill," whereas "Arroyo dos Molinos" means "two mill streams." (See Fortescue, Vol. VIII, page 272.

Honours for the Peninsula Campaign were being granted for many years after the conclusion of hostilities in 1814 and as recently as 1908 The Duke of Wellington's Regiment was granted " Corunna " (Army Order 51/1908).

Before leaving the Peninsula campaign there is one minor action which has secured a lasting memorial in the form of an augmentation to the coat-of-arms of one of our distinguished military families. During the crossing of the Nive on 13th December, 1813, a fight took place at Vieux Mouguerre. General Byng, the British brigadier, seizing an opportunity for making an assault on the French trenches, suddenly snatched the regimental Colour from the ensign of the 31st Foot (now 1st Battalion, East Surrey Regiment) and led the assaulting troops to victory. For this exploit Byng received an augmentation which took the form of a regimental Colour of the 31st Foot placed over his arms: in addition, he adopted the crest: " Out of a mural crown an arm embowed, grasping the Colours of the 31st Regiment and on an escroll, the word 'Mouguerre.'" Byng was created Earl of Strafford and his arms are now borne by Field-Marshal the Viscount Byng of Vimy, who is the seventh son of the second Earl.[1]

" Waterloo " was a general grant made under Horse Guards circular letter dated 8th December, 1815.

After the grant of " Peninsula " all subsequent grants were general in nature, indicating that the authorities had definitely assumed responsibility for considering operations from the commemorative aspect as soon as they were concluded. A consideration of a commemorative medal seems to have taken place at the same time, for one can usually trace a connection between the grant of the honorary distinction and the medal for the campaign, *c.f.* those for Burma, 1st Afghan War (1838–40), 1st China War (1840), 1st Sikh War (1845–46), Crimean War (1856–7), Indian Mutiny (1857–58), etc., which brings us to the second period.

The Alison Committee.

Up to 1882, there is no record of how, or on what system, honours were granted; it is only possible to assume that certain principles operated by connecting the grants of honours with those of medals. In that year, however, matters were put on a better footing by the appointment of the first Battle Honours Committee, under the presidency of Major-General Sir Archibald Alison. The Committee was directed:—

" To consider claims of the regiments, which took part in
(i) The campaigns of the Duke of Marlborough,

[1] *Vide* Burke's Peerage.

(ii) The Wars between the British and French in America, to be allowed to commemorate on their Colours the names of the important victories gained in those wars, which are at present unrecorded."

In their Report the Committee stated that their working principle was:—

"That in dealing with events so long past, the names of such victories only should be retained, as, either in themselves or by their results, have left a mark in history which renders their names familiar, not only to the British Army but also to every educated gentleman."

When the Report was published the Press poked fun at the Committee for setting themselves up as the self-appointed judges of what is an "educated gentleman." The Committee was, however, soon in difficulties for other reasons as is shown in the following passage from their Report:—

"Owing to the remoteness of the date (of the campaigns of Marlborough) and to the habit which prevailed at that time of mentioning in dispatches simply the total number of squadrons or battalions engaged, without naming them, a considerable amount of investigation has been necessary to arrive at a full list of all existing regiments entitled to all or any of the names already specified. In one case, that namely of Lille, this has been found impossible of accomplishment."

In another place the Report lets in a bit of light on the system of granting honours before that date in that it states:—

"In the British Service the principle exists that when distinctions are conferred for a siege, they should be granted not only to the corps absolutely conducting, but also those covering, it."

Proceeding on these lines the Committee recommended that certain regiments be awarded "Blenheim," "Ramillies," "Oudenarde," "Malplaquet," "Quebec" and "Louisburg." Their recommendations were accepted and the soundness of their work may be judged from the fact that only one regiment's name has been added to their lists, namely, The Wiltshire Regiment, which was granted "Louisburg" under Army Order 97/1910. While Marlborough was operating in Central Europe British forces were busy capturing Gibraltar, but the honour "Gibraltar, 1704–5," was not granted until 1909, over two hundred years after the event. No doubt the narrowness of the Alison Committee's terms of reference is responsible for not including in their consideration all operations of the War of the Spanish Succession.

During the summer of 1882 this Committee reassembled and dealt with "Dettingen," and this closed their work.

The Period Between the Alison Committee and the Permanent Advisory Committee of 1907.

There can be no doubt that in official quarters efforts were continued with the object of doing justice to regiments. No evidence of a committee has been traced, from which fact it is assumed that the Adjutant-General's department carried on the work begun by the Alison Committee, since in 1882 a General Order (No. 252) was published conferring honours on regiments for "South Africa, 1835," "South Africa, 1846–7," and "South Africa, 1851–2–3." Strangely enough, "South Africa" had been granted previously under General Order No. 57 of 1881 for the 1877–79 campaign, so that in view of the subsequent grants it was necessary to add the dates "1877–8–9," which was done by General Order 252/1882, thus ensuring uniformity and freedom from confusion.

During this period we find batches of honours granted for the Egyptian campaign of 1882–84[1] and the Nile campaign of 1885–86. Indian service was not neglected, and honours for campaigns between 1780–1792 (e.g., Mysore, Carnatic and Sholinghur) were awarded. What must have caused a considerable amount of work was the granting of honours for the last South African War, 1899–1902, for not only was the Regular Army engaged but the Militia, Volunteer Force and the armies of the Dominions participated. By this time the rule that in order to earn an honour the headquarters and at least 50 per cent. of a unit must be present at the engagement in question, was in operation. There have been circumstances in which the headquarters of a unit could not take any part, as such, e.g., detachments from regiments serving in vessels in the fleet, and the rule was modified to that extent. Further, in dealing with the Volunteer Force some special rule had to be made, and honours were granted if no less than twenty men of the unit was present at the engagement. This applied to units of Dominion forces as well. For the Great War, however (q.v.), the rule that headquarters and 50 per cent. of a unit must be present was applied to the Territorial Army.

The Permanent Advisory Committee.

The South African War seems to have stimulated many officers and others to commit their experiences to writing, and many budding regimental historians set to work. Whatever may be the value of their

[1] In this connection the 7th City of London Regiment (Post Office Rifles) have the distinction of being the only Territorial Army unit to bear a battle honour for service prior to the last South African War. They have "Egypt, 1882."

labours an intensified interest in the subject of battle honours resulted, and applications for distinctions to commemorate events of "long ago" continued to be made. This led the War Office to constitute the "Permanent Advisory Committee on Honours and Distinctions," which started its career under the chairmanship of Major-General J. Spencer Ewart.

The creation of this Committee was a great advance in the system of dealing with claims, and it set to work to put the matter on a firm, commonsense basis. Its recommendations have not always been popular, but it can safely be stated that their investigations have been thorough and their conclusions, based on the materials at their disposal, uniformly just. Its work was confined entirely to straightening out history as recorded on Regimental Colours, and their recommendations are reflected in the grants of honours for "Tangier, 1662–80," and "Namur, 1695" (A.O. 45/1910), such XVIIIth century battles as "Gibraltar, 1704–5," "Warburg," "Beaumont" and "Willems" (A.O's 180 and 211/1909), and West Indian campaigns—"Havannah," "Guadaloupe," "St. Lucia" and "Martinique" (with dates added to the last three) (A.O. 295/1909), and a belated batch of further Peninsular honours (A.O. 218/1910).

The Battles Nomenclature Committee and the Battle Honours Committee.

The magnitude of the Great War was such that it was obvious the ordinary Honours and Distinctions Committee could not cope with it. Further, every part of the Empire was concerned, and this needed representatives from the Dominions. To meet the situation two distinct committees were created:—

(*a*) The "Battles Nomenclature Committee," which determined generally what operations were to be classified as "battles." It was appointed in 1919 under the presidency of Major-General Sir J. Headlam.

(*b*) The "Battle Honours Committee," which allotted "battle honours" to regiments. It was appointed in 1921, under the chairmanship of General Sir A. J. Murray, and it worked to the previously mentioned general rule—headquarters and 50 per cent. to be present at an engagement to earn the honour.

The activities of these two committees are of such recent date, and a record of their work and recommendations so easy to obtain, that no further reference will here be made to them. See the Report of (*a*) and Army Order 55 of 1925 regarding (*b*).

The Post-War Honours and Distinctions Committee.

When the Headlam and Murray Committees were dissolved, it was necessary to have some corporate body to deal with queries arising from their recommendations and to consider further claims; this work

naturally fell to the lot of the Honours and Distinctions Committee, the lineal descendant of the Committee created in 1907.

The Scope of Battle Honours.

By the process of time the term "battle honour" has become restricted to the name of an action or engagement, e.g., "Salamanca," or "Mons," or the name of a campaign, e.g., "Peninsula" or "France and Flanders, 1914–18." This is by far the commonest method of commemorating war service. The earliest campaign to be commemorated in this manner is "Tangier, 1662–80," and the last "Afghanistan, 1919." The names usually follow the spelling current at the time of the campaign, and this accounts for such variations as: "Affghanistan" for the 1839 campaign but "Afghanistan" for the 1878–80 and 1919 campaigns; "Cabool" for the 1842 campaign, but "Kabul" for the 1879 operations; "Ashantee" for the 1873–4 campaign, but "Ashanti" for the 1900 campaign.

The spelling of some honours has been changed to accord with fuller knowledge of the places concerned. For instance, "Rolica" was originally spelled "Roleia"; "Albuhera"—"Albuera"; "Villers-en-Cauchies"—"Villers-en-Couche"; "Egmont-op-Zee"—"Bergen-op-Zee."

The only battle honour for a place in Great Britain is "Fishguard." A small French force landed at that place on 23rd February, 1797, and was captured by the Pembrokeshire Militia. The honour was borne by the Castle Martin Yeomanry, which was converted to the 102nd (Pembroke and Cardigan) Brigade, Royal Artillery, after the Great War. The honour "Jersey, 1781," is borne by the Jersey Light Infantry to commemorate the repulse of a French force on 6th January, 1781.

Honorary Distinctions.

Before a regiment or corps is allowed to adopt any form of Honorary Distinction it must be approved by the Sovereign. It is then usually notified in Army Orders, and certain of them, i.e., those which are placed on Regimental Colours, are shown in the Monthly Army List at the head of each regimental list. Under Army Order 170/1930 all Colour-bearing regiments which had not a centre badge on their Regimental Colour were ordered to submit designs for one. These centre badges are shown in heavy type immediately under the regiment's title in the Army List. In some cases they embody distinctions granted for war service, but the list is too long for recital.[1]

[1] As already explained, honorary distinctions spring from heraldry, and ever since 1806 an officer of the Herald's College, or College of Arms, Queen Victoria Street, E.C.4, has been Inspector of Regimental Colours. The present holder of the appointment is Sir Gerald W. Wollaston, Knt., M.V.O., Garter Principal King of Arms.

In some Australian units the divisional distinguishing patches are borne upon their Colours, usually below the circle bearing the unit's designation, but in at least one instance a patch occupies the centre of the circle.

Honorary distinctions take many varied forms besides battle honours, but there is not space here for more than a reference to these interesting items of military life. In conjunction with battle honours borne on Regimental Colours they epitomize, to some extent, the history of the Army.

WAR OFFICE LETTER ON REGIMENTAL HONORARY DISTINCTIONS

The following letter dealing with this subject has been circulated under the War Office number 20/Gen./5408 (A.G.4.d.) and dated 17th February, 1934 :—

SIR,—I am commanded by the Army Council to inform you that a number of applications from units for the grant of honorary distinctions in commemoration of operations in which they have taken part have been received in this Department during the past few years. The Council realised that regiments, other than those who have submitted claims, might desire to put forward applications and they therefore decided to defer the investigation until the subject could be comprehensively reviewed. They consider that the time has now arrived when such a review can be made and have decided that this will be carried out by the Honours and Distinctions Committee at the War Office.

2. The Council hope by this review to secure finality, and regiments and corps are requested to review their own honorary distinctions and submit applications for further distinctions wherever such applications would appear to be justified. No limit is placed on the operations to be reviewed, and pre-Great War as well as those of the Great War should be considered.

3. I am to add that the following instructions will be observed when submitting applications :—

(*a*) Applications, addressed to The Under-Secretary of State (A.G.4.d.), The War Office, London, S.W.1, must reach the War Office not later than 1st July, 1935. All enquiries on this subject will be similarly addressed.

(*b*) Applications must be submitted through Colonels of Regiments or Colonels Commandant of Corps. In the case of Infantry Regiments the views of all battalions forming part of the Corps should be obtained to obviate subsequent representation from those who were entitled to consultation in the first instance.

(*c*) Applications must be supported by relevant extracts from official despatches or other recognised authorities.

(*d*) Applications must be typewritten on one side of sheets of foolscap ; double spacing ; a margin of at least one inch down the left side.

Where applications are made for more than one distinction, each application will be enclosed in a separate folder.

BI-LINGUAL BORDERLANDS OF HISTORIC GERMANY

By Vaughan Cornish, D.Sc., F.R.G.S.

THE recent revival of an intense nationalism in the German Reich and the recrudescence of the doctrine of pan-Germanism have once more turned the attention of the general public to the frontiers of Germany. Professor E. Banse's book *Germany Prepare for War*, recently published in England provides a useful list of the debatable borderlands of dual language in this danger zone. To the student of war and of the causes which lead to war these Germanic borderlands are of abiding interest for they are regions of divided loyalties and conflicting claims, and in several instances positions of great strategic importance.[1]

In the following review of the Germanic borderlands I have added certain bi-lingual districts which are included within the present limits of the Reich and of Austria. The Grand Duchy of Luxemburg, classed by Herr Banse as a purely German State, I have placed among the borderlands, while I have dealt with the Danzig territory in my review as part of the pre-war province of West Prussia.

The fluctuations of name add to the difficulties of the description of borderlands. For the most part I have employed the historic names of the bi-lingual states or provinces as used before the revision of frontiers by the Versailles and other treaties following the Great War. The only doubtful case was that of Belgium: the linguistic frontier concerned being that between the Low-German Flemish language and the Romance (Walloon or French), I have substituted the terms Flanders and Brabant. Flanders, moreover, as a term of historical geography embraces both sides of that portion of the linguistic boundary which falls within modern France. These old states and provinces—Flanders, Brabant, Lorraine,

[1] Herr Banse gives the following list of the Germanic portions of other countries: German Belgium (Flanders, Brabant, Eupen, Malmédy); German Switzerland; German France (Flanders, Alsace and Lorraine); German Italy (especially the Southern Tyrol); German Yugoslavia (Southern Styria); German Czechoslovakia (Bohemia, Moravia, Upper Silesia); German Poland (West Prussia, Posen, Upper Silesia); German Lithuania (the Memel territory); German Denmark.

Alsace, Styria, Posen, Schleswig and others—have two sets of frontiers, the political and the linguistic, and in almost every case one of these dates from heathen times. The frontier of the Flemish language is the most ancient of all, for it dates from the friendly reception of the Salian Franks within the Christian Empire of Rome in the IVth century, 358 A.D. The political frontiers of historic Flanders were determined much later. On the East of Germany the order of date of the two kinds of frontier, linguistic and political, is usually reversed. Thus the political frontier of Bohemia, now a part of Czechoslovakia, marks the political boundary at the time of the conversion of the Bohemians to Christianity in the IXth century, which resulted in the preservation of their language by embodiment in literary form. The linguistic frontier between German and Czech, which lies well within the political boundary of Bohemia, is due to German immigration during the XIIIth century. This penetration, which was equally marked about that time in Posen, and even more so in Silesia, was due to the fact that the march of material civilization in North-Central Europe during the Middle Ages was eastwards from the lands civilized by the Romans.

Now let us proceed to the survey of the Germanic borderlands from Flanders to Schleswig, in the counter-clockwise direction.[1]

Flanders and Brabant

The boundary between the Low-German Flemish language and the Romance runs from West of Dunkirk through a small corner of France and then follows a straight easterly course across the Belgian plain, passing Waterloo, and reaching the frontier of the Reich and of the Middle-German dialect of modern German not far from Aachen. Upon the monotonous fields of the Belgian plain no natural feature remains to account for this singular division, but tradition has it that in the days of the Roman Empire the dense woodland of the great Carbonaria Silva occupied all to the South.

In mediæval times the conditions of communication, trade and industry favoured the formation of small states, and conferred special economic advantage upon little link-lands connecting the larger, metropolitan, regions such as the basins of the Seine and Rhine. On the other hand, the retention of Latin as a common language of learned intercourse throughout Western Europe favoured the political integration of districts whose linguistic division dated from the ancient and forgotten animosities of a Christian and heathen world.

[1] This is of course intended for reading with an open atlas, preferably one which includes historical, political, physical and linguistic maps, as for instance, the *Atlas Général* of Vidal Lablache.

Eupen, Malmedy and the Grand-Duchy of Luxemburg

We have next to examine the frontier between the Middle-German dialect of modern German and the Romance languages, Walloon and French.

Before the Great War the two small districts Eupen and Malmédy, parts of the Walloon-speaking Ardennes highland, were included in Rhenish Prussia, but were assigned to Belgium by the Treaty of Versailles.

The Grand Duchy of Luxemburg occupies a junction of routes at the south-eastern corner of the Ardennes which has been for centuries of strategic importance. A patois of mixed German and Romance language is spoken throughout the country. Before the Great War this little State was within the German Customs Union, but has now entered into economic union with Belgium.

Lorraine

From Luxemburg onwards the frontier between the Middle-German dialect and the French language crosses Lorraine in a south-easterly direction. The whole line from Aachen as far, or nearly as far, as the Vosges appears to be almost identical with the settlements of the heathen Ripuarian Franks in lands acquired by conquest during the Vth century. from the Christian provincials of Gaul.

The conversion of the Ripuarians followed early in the VIth century. The linguistic frontier remained, but it was no longer a division between hostile polities and there grew up autonomous provinces which straddled the linguistic line. In mediæval times these were affiliated to the Holy Roman Empire, to the successors of the eastern not the western division of the Franks, but in the XVIIth century were united as the province of Lorraine under the French monarchy. This province comprised the present departments of Meuse, Meurthe-et-Moselle, Vosges and Moselle. Situated between the Ardennes and Vosges this province is a link-land between the basins of the Rhine and Seine. It is not an open lowland as the Belgian plain but valleys converging from the North-East and South-East make Metz an important strategic point. The partition of the province in 1871 nearly followed the linguistic division, but Metz which lies on the French-speaking side was added to the new German Empire. By the treaty of Versailles the German-speaking part of Lorraine was restored to France.

Alsace, Helvetic Switzerland and the Grisons

Alsace, mainly German-speaking, was part of the Holy Roman Empire until the XVIIth century, when it came under the French Crown.

In 1871 it became part of the new German Empire, except a small portion near Belfort, where the French language is spoken. The hyphenated word Alsace-Lorraine to which we have become accustomed since the cession of 1871, suggests a geographical unity which does not really exist, for the Vosges form a natural frontier between the provinces. The southern part of the range, known as the Grandes Vosges, is also a linguistic frontier dividing the German from the French language.

All the way from the northern end of the Grandes Vosges through Switzerland to Tyrol the frontier of German language is not the legacy of the Ripuarian Franks but of the Alamannians, and the dialect belongs to the Upper-German group.

The linguistic frontier from the northern end of the Grandes Vosges to the Bernese Alps has an antiquity of fifteen hundred years. It marks the boundary between the heathen Alamanns and the Gallic territory ruled by the Burgundians, who were equally of German race, but Christian. After the conversion of the Alamannians the division lost its political significance; it has not become a national frontier and is not even a cantonal boundary.

An unfortunate accident in the making of historical atlases has given misleading prominence to a map which shows heathen Alamannia projecting far to the South-East of the boundary of Alsace-Lorraine and enclosing a large district of French-speaking country, including not only Langres but Besançon, the archiepiscopal see of the Burgundian kingdom. This appears in the first map of Spruner and Menke's *Hand-Atlas für die Geschichte des Mittelalters und der neueren Zeit* (3rd Edition, 1880) which shows "*Europa zur Zeit Odovacars* (476-493)." This atlas provided a common groundwork for many later publications, and with good reason for it is a monument of research, but in this instance the lead has been followed blindly without comparison of the more detailed maps of Merovingian Gaul, or sufficient attention to significant dates. Such penetration of Burgundy by the Alamanns should be taken to relate not to the beginning but the end of the period 476-493, representing a phase in their critical contest with the heathen Franks for the conquest of Christian Gaul. This resulted in the defeat of the Alamanns by Clovis in 495, followed by his official adoption of Catholic Christianity in 496. But it has long been the custom of historians to take the year 476, the beginning of Odoacer's kingship of Italy, as marking the transition from ancient to mediæval history, and so our historical atlases are provided with a map of "Europe in 476" copied from Spruner-Menke's map of 476-493. But the selection of the date 476 as epoch-making arises from the habit of regarding these times as characterised by the decline and fall of the Roman Empire. To the student of racial geography the

outstanding significance of the period is, on the contrary, the rise and development of European nations, and the turning point is not the accession of Odoacer in 476, but the conversion of Clovis in 496.

The boundary of German language in the heathen days of Alamannia continued along the line of the Bernese Alps to the St. Gothard massif, Canton Valais being then Burgundian and Romance-speaking. To-day the Valais above Sierre is German-speaking, an encroachment of German upon Romance language effected in the XIIIth century, which was an epoch of industrial colonization in several directions from German-speaking lands.

Beyond the St. Gothard massif the boundary of heathen Alamannia followed the line of the Tödi group which is still the boundary between the German speech and Romansch of the Grisons. This western portion of Roman Rhaetia, girt round with glaciated ranges and traversed by few low passes, is physically isolated and strategically defensible. It was traversed from South to North by a Roman road passing through the administrative centre Coire. From this district, which is the principal Alpine area of the Romansch and closely allied dialects of rustic Latin, Christianity never receded. An outlying dependency of the Christian Gothic kings who had their capital in Italy, the over-lordship was transferred by Witigis to the Christian Franks in 536, at the time when all Alamannia passed under their rule. The establishment of blocks of German-speaking people in the Grisons is traced to an overflow from the XIIIth century colonization of the Upper Valais. As in the case of several linguistic borderlands, the principal authority was long exercised by an ecclesiastic, the Bishop of Coire. The ancient connection with Italy is shown in the ecclesiastical geography of the IXth century, for although the diocese of Coire was politically German it was in the archiepiscopal province of Milan, not in either that of Mainz or Salzburg.

Thus the Grisons has a frontier dating from heathen times, but in this case it is political not linguistic.

Tyrol

In order to understand the historic origin of Tyrol, a typical bilingual territory, we must think of the boundaries of Bavaria as they were in the days before requirements of defence and opportunities of expansion on the East led to the formation of an Austrian Empire. In the period when the present linguistic geography of the region of the Eastern Alps was determined, the country of the Bavarians was bounded on the West by the Lech but on the East the present district of Salzburg was an integral and important part of Bavaria, the present province of Upper Bavaria was a Bavarian Marchland, and the Bavarians had

colonized and were ruling the Brenner route as far as the present boundary of the German and Italian language. The Bavarians, a heathen Germanic people, had entered these war-wasted territories about the year 500, and another two hundred years elapsed before their adoption of Christianity. Along the Brenner route the frontier of Christendom receded before them to the vicinity of Salerno on the Adige a little to the North of Trent, which marks the boundary of the Imperial provinces of Italia and Rhaetia. The Lombards, Christian Germans who established a kingdom in Italy in 568, made the Trent district a military area under the direct control of a Duke, a condition favouring an exceptionally precise delimitation of administrative area and a centralization of administration which was exceptional in the Dark Ages. But in the days of the Holy Roman Empire when the Emperor had an Italian as well as a German kingdom and the Brenner route was their indispensable link, it was desirable that entrance and exit should be comprised in one administration, and the district of Trent, then administered by the bishop, was taken from the Italian kingdom and united to the German kingdom, the combined province receiving the name Tyrol from the residence of the noble family appointed to rule. The district has the degree of physical unity which characterises small link-lands between large natural regions, and a local patriotism developed which transcended linguistic differences. The united nationalism maintained for hundreds of years in this bi-lingual land was accompanied by conspicuous loyalty to a dynasty and therefore differed in character from that of the Swiss Confederates.

In view of these facts it is indeed remarkable that the pre-existing linguistic boundary should have remained fixed in position and defined in character not only where mountains make a barrier but along the highway of the Adige Valley.

In the readjustment of political boundaries after the Great War the linguistic division has not been followed and a German-speaking block has been assigned to the Italian kingdom.

Carinthia and Styria.

Eastwards of the Adige Valley the ridge of the Carnic Alps has maintained a definite boundary of Germanic speech coincident with the historic frontier of Italy.

Beyond the Triglav massif the Karawanken range continues the West-to-East Alpine barrier, and forms the southern boundary of the Drave Valley, which is bounded on the North by the Tauern Alps. This, the longest of the longitudinal valleys of the Alps, and debouching on the plains of Hungary, was from remote times the great avenue for the inroads of eastern peoples to Alpine regions. By this way came

the heathen ancestors of the Slovenes, who, in the VIth century, occupied the valley up to its headwaters. Later, when the Avars threatened the security of Central Europe, Charlemagne extended his dominion so as to include the longitudinal valleys of the eastern Alps, and established Marklands as outposts of civilization. Meanwhile, in the VIIth century, the Slovenes had accepted Christianity, with the result that their language was raised to literary status and the permanence of national tradition thereby ensured. They were not a combative people, and acquiesced in the administrative guidance of the more advanced German race. In the course of centuries the linguistic boundary receded before the expansion of the German people.

In the border Duchy of Carinthia, only a narrow strip in the South, the Klagenfurt district, separated from Carniola by the Karawanken range, is now of Slovene speech. After the war this district was submitted to plebiscite and elected to remain within the Austrian dominion, that is to say part of historic Germany. Thus Carinthia is not included in Professor Banse's " German-Yugoslavia," although it may conceivably be described by a Yugoslav writer as Yugoslav-Germany.

Styria had been constituted a German Mark, the Steiermark, in the XIth century because of the pressure of the Magyars. In 1914 the eastern frontier of the Duchy, dividing the Austrian from the Hungarian dominions of the Dual Monarchy, spanned the great avenue of the Drave Valley and reached as far South as the river Save. The area of the Duchy was somewhat larger than that of Wales and the population about one million-and-a-half. The northern and larger part was German-speaking, the south-eastern portion occupied by Slovenes, about one-third of the population of the Duchy. This part was assigned by treaty after the Great War to the State of Yugoslavia.

The reduced Styria of the present Austrian state is no longer a transitional borderland of the German world and the transferred portion is not German-speaking. How then are we to regard Professor Banse's description of the transferred portion as " German Yugoslavia ? " Linguistically and ethnologically the term is not applicable, but it has some historic justification. The student of war and of the causes which lead to war cannot accept the sweeping statements of some reviewers of Banse's book who dismiss his opinions as mere balderdash or as symptoms of an abnormal mind. In point of fact when a province has been united under one administration for nearly a thousand years, and has existed most of the time peacefully, certain elements of unity remain, as is evidenced by the plebiscites in the Klagenfurt district, and in other Germanic borderlands with which I shall presently have to deal.

Burgenland.

Eastward of the frontier of Northern Styria and of Lower Austria the kingdom of Hungary included in 1914 a narrow belt of territory extending northwards as far as Pressburg on the Danube with a population of which about two-thirds were German-speaking, the remainder speaking some Magyar, some Slovak, the language of the Croats. The Slovak element is the remnant of the Slavonic population which once occupied the eastern entrances to the Alps, but in this part were almost completely submerged in the fierce conflict between Germans and Magyars. After the Great War the State of Hungary was deprived of this territory. The plea that this narrow strip of ancient Slavdom should be constituted a "corridor" territory to unite Yugoslavia with Czechoslovakia was considered and rejected, and the district was assigned to Austria and given the name of Burgenland. A tri-lingual borderland has thus been added to the Germanic dominions.

In Roman times this district of the foothills was part of Pannonia, not far from the western frontier of the province where it marched with Noricum. On the North and East, Pannonia was bounded by the Danube above and below the great bend near which Budapest now stands. The student of strategic geography will find much of interest in the comparison of the frontiers in this region chosen by Roman statesmen with the equi-potential lines which resulted from the conflicts of mediaeval Europe. The former were maintained by the mobile professional army of a central government, the latter by levies of a warlike peasantry under the command of local landlords. Consequently the defensive line shifted from the river to the foothills and Pannonia as a political entity vanished from the map. It remained for some time, however, an ecclesiastical province. In this connection I may draw the attention of the student of national frontiers to the assistance given by ecclesiastical divisions, particularly archiepiscopal provinces, in bridging the gap between the Classical and Modern Atlas.

Bohemia and Moravia.

The political boundary of Bohemia on the South-West, North-West and North-East, which follows a well-marked line of heights, is of great antiquity. Whereas no trace remains upon the map of the illiterate Slavs of the North-European plain who went down before the Germans with their heathen colours flying, the Bohemian frontier was preserved owing in great measure to the circumstance that they had accepted Christianity (873 A.D.) before their incorporation in the Holy Roman Empire, whereby the Czech language was made literary and permanent. At the present time the proportion of German-speaking people in

Bohemia is about 35%, and there is a fairly definite linguistic frontier within the political frontier. The inflow of Germans took place mainly in the XIIIth century, a genuine economic penetration, welcomed and indeed invited by the Czech sovereigns who acknowledged the overlordship of the Emperor. Here once more we may note the contrast in relative dates with that characteristic of the borderlands between the inheritors of the eastern and western divisions of the Frankish Empire, for in Belgium, Lorraine, Alsace and the plain of Switzerland the linguistic is more ancient than the political frontier.

The events which determined the conversion of the Czechs are fundamental in the history of the German borderlands all the way from the northern frontier of Bavaria to the Baltic. There is, however, so little record of this time that the clue to a whole series of problems relating to national frontiers is apt to be missed. This clue is provided in the meagre annals of the transitory kingdom of Great Moravia. Between the defeat of the Avars by Charlemagne in 805 A.D. and the arrival of the Magyars there was a quiet century in the countries of the Middle Danube, and during this period a Slavonic State of wide dominion grew, Great Moravia to wit, which under King Svatopluk comprised the eastern part of modern Hungary between the Drave and the great elbow of the Danube, modern Moravia, modern Bohemia and the Chrobatian lands which included not only the eastern part of the present Czechoslovakia but the parts of Poland about Cracow, and some portion of Silesia. It was significant that the Christian religion with its accompanying literature was refused when offered by German missionaries but accepted by the Moravians at the hands of missionaries from Byzantium. In this connection it should be borne in mind that there was as yet no deep schism between the Eastern and Western Church. Although the bridge provided by Great Moravia was broken down by the Magyars, it lasted long enough to achieve the missionary purpose, and Christianity reached Poland by this route. Here the subsequent course of events was similar, for the Poles rejected the connection with the archiepiscopal provinces of Germany.

The Grand Duchy of Posen.

From the river Eider, the boundary between Holstein and Schleswig at the northern extremity of Charlemagne's dominion, the political and linguistic frontiers of Germany advanced *pari passu* during the conquest of the heathen Slavs. Their unwritten languages are now only preserved in small patches of peasant population, generally in some district of swamp or forest. The advance of the German linguistic frontier was checked on reaching the homeland of the Poles. This was the district which on the political map of 1914 appears as the Province of Posen in

the Kingdom of Prussia, but at the time of the Congress of Vienna, when it was confirmed to Prussia, was still known as the Grand Duchy of Posen. It is Polish in speech except in the extreme West, where the German tongue encroached during the economic penetration of the Middle Ages. This small district, now known as Grenzmark Posen, was reserved for the German Reich under the provisions of the Treaty of Versailles. The rest of the Prussian Province now figures on the map as the Counties of Posnan and Pomorze in the Republic of Poland.

The fact that this great westward projection of Slavonic speech, traversed centrally by the river Warta, is the cradle of the Polish nation, is apt to escape attention owing to the transference of the capital first to Cracow and later to Warsaw, both upon the river Vistula. The first capital, Kruschwitz on Lake Goplo, the city of Posen, the first episcopal see and the archiepiscopal see, Gnesen, are all in the Grand Duchy (later the Prussian Province) of Posen. The position of these three cities defines the original metropolitan area of the Polish state as the link-land between the Warta and the lower Vistula. This was a position favourable to the foreign trade which aided the national development of a loose tribal aggregate, as happened in similar situations in Russia at the same period. In the latter part of the Xth century the Poles were in direct contact with Germany, for it was a time of German expansion before the set-back due to the successful revolt of the Slavonic tribes domiciled between the Elbe and Oder, but Christianity came to Poland by another route. The torch lighted in Moravia by the missionary Methodius was passed on to Bohemia, to the Northern Chrobatia (the country around Cracow) and to the basin of the Warta. Boleslaus the Brave (992–1025) was the second Polish sovereign of Christian faith but the first to realize the paramount importance to his people of securing for the Church within his dominions independence of all ecclesiastical authority except that of the Holy See itself. The city of Posen was an episcopal see as early as 968 A.D., but under the authority of the archbishop of Madgeburg. This state of things was radically changed in the reign of Boleslaus, the city of Gnesen, situated midway between Posen on the Warta and Kruschwitz on Lake Goplo, being made the seat of an archbishop, and the see of Posen placed in his province. Boleslaus, who was a great conqueror, ruled in Silesia, formerly under Bohemia, and established a bishopric at Breslau which was also placed in the archiepiscopal province of Gnesen.

Silesia.

Whereas the advance of the German language frontier was very slight in Posen it was rapid in Silesia. This region may be described as the country of the River Oder above its junction with the Bober. Before the

arrival of the Germans on its frontier the Slavonic inhabitants (neither Czechs nor Poles) had adopted Christianity. They had not, however, acquired the sense of nationality, and accepted the ways and civilization of the Germans so completely that Lower Silesia became wholly German-speaking, and only Upper Silesia and the "Austrian Silesia" of 1914 remained polyglot. The southward shift of the centre of Polish national life which caused Cracow to be made the capital of Poland in 1305, mainly accounts for the large Polish-speaking population in the Oppeln district of Silesia. The greater part of this district was submitted to plebiscite under the Treaty of Versailles, with the result that most of it remained in the German Reich, but a smaller part near Cracow elected for inclusion in the Polish Republic.

In the small province of Austrian Silesia the largest linguistic element was German, although the combined population of Czechs and Poles was somewhat greater. After the Great War the province was allotted by treaty to Czechoslovakia except part of the Teschen district, which was finally awarded to Poland.

The connection of the uppermost part of Silesia (Austrian in 1914) with the Czechoslovakian lands is evident from its position at the Moravian Gap between the Bohemian and Carpathian mountains. The importance of the Moravians during the Dark Ages was due to their occupation of the land which links the Oder and Vistula with the Middle Danube by way of this Gap and the river Morava.

East and West Prussia.

Of the German territories (*Länder*) united in the German Commonwealth (*Deutsches Reich*) the most populous is the republic of Prussia (*Freistaat Preussen*), whose capital, Berlin, is the capital of the Reich. The re-welding of Germany as a single Commonwealth in 1871 was mainly the achievement of the German people who call themselves Prussians. The homeland of the Prussian State, however, is not in the provinces of East and West Prussia (even as they figure undiminished in the map of 1914), but in Brandenburg. This province is traversed centrally from East to West by the waterways on which are situated Berlin, Potsdam and the city of Brandenburg, a link between the Elbe and Oder which is comparable to the Kruschwitz–Gnesen–Posen link between Vistula and Warta, which was the metropolitan district of Poland. The provinces of East and West Prussia, as in 1914, are bi-lingual lands, part German-speaking, part Polish-speaking, and derive their name from a tribe which was not akin to the Germans but closely related to the Lithuanians in race and language. When East Prussia, a late conquest from heathendom, came under the rule of the Elector of Brandenburg it was not a fief of the Holy Roman Empire, so that when

the Elector obtained recognition of his position as "King in Prussia" he acquired the status of an independent sovereign, and his successors were no longer described as "Elector" but as "King of Prussia." Thus the origin of the name Prussian as the description of a German people is not ethnographical or linguistic but political.

The provinces of East and West Prussia were civilized partly by the Poles partly by the Germans. In the time of Boleslaus the Brave, King of Poland, c. 1000 A.D., the Vistula below its last bend was the boundary between the Pomeranian Slavs on the West and the original Prussians on the East. Boleslaus established a loose overlordship of the lands on the West of the Vistula between the Netske and the coast as far as the Oder; and on the East of the Vistula as far as the Niemen of the lands lying between the coast and line formed by the river Drewenz and the chain of Masurian lakes. On account of the physical barrier of the lower Vistula and the ethnological difference associated with it, the course of conquest and conversion by the Poles was different on the opposite banks of the river. The Pomeranians on the West, nearer in blood and speech, were more amenable, and monasteries were early founded in the part known as Pomerellen which lies near the left bank. The natives of the district, the Kasubes, now Polish-speaking, are considered to be nearly allied to Polish stock. The country East of the lower Vistula adjacent to that part of Poland called Masovia, was under the immediate and effective rule of a Duke, but North of the Drewenz the corner between this tributary and the Vistula, known as Kulmerland, was controlled by a Polish ecclesiastic at Kulm who was entitled bishop of Prussia. In 1220, the bishop called in the aid of the crusading Order of the Teutonic Knights, who were empowered to win the country still remaining heathen for Christendom and for their Order. The result is well indicated by the map of archiepiscopal provinces from the XIIIth to the XVth centuries in which the province of Gnesen includes Pomerellen, while Kulmerland and the region of the Masurian lakes are in the province of Riga, which was coterminous with the countries ruled by the German Military Orders. Later on Pomerania was divided between the Elector of Brandenburg and the Teutonic Order, the Knights taking Pomerellen; and as their territory was known from its natives as Prussia, the latter name was extended to include Pomerellen, which lies West of the Vistula. By the end of the XVIIth century the old Prussian language had become extinct, and the difference in character between the country on the two banks of the Vistula was thus further diminished. The constitution of a separate province of West Prussia, comprising some country on the right bank, only dates from 1808. All that portion West of the Vistula in which the population is largely Polish-speaking, was assigned to Poland after the Great War,

but a narrow strip at the south-western extremity in which the population is German-speaking, was confirmed to the Reich, and this is all that now bears the name of West Prussia—no longer a province but a district of the newly-constituted Border Province of which the other half is the Grenzmark Posen, to which reference has already been made.

In Danzig and the neighbouring country of the Vistula delta the population is German-speaking. Politically the city has had affiliations at different periods with Poland, Sweden and Brandenburg, but with autonomous rights. The constitution given to Danzig and district by the Treaty of Versailles is that of a Free City under the protection of the League of Nations. This registers the inability of the Powers to decide between conflicting claims.

Of those parts of Prussia East of the Vistula where Polish is largely spoken, Kulmerland was assigned to Poland after the Great War, but the Government of Allenstein in the region of the Masurian lakes—where the Poles are Protestant—was submitted to plebiscite. The voting was in favour of the Reich and the district forms part of the present province of East Prussia.

As reconstituted since the Great War East Prussia is entirely cut off from land communication with the rest of Germany, which gives the map of this part of Europe an archaic appearance, which is very disquieting, for such discontinuities, common in the Middle Ages, have one by one disappeared.

The severance of the narrow strip beyond the Niemen does not offend the eye in this way. The town of Memel is mainly German-speaking, the speech of the country district largely Lithuanian. These together have been constituted an autonomous territory in the republic of Lithuania with certain provisions relating to the international use of the port.

Schleswig.

At the death of Charlemagne (814 A.D.) the boundary of German speech and the Christian Church North of the Carinthian Mark followed the line of the Enns, the Bohemian Forest range, the Saale and the Elbe as far as the junction of the Deventer, and thence to Kiel Bay. East of the line were the heathen Slavonic tribes. The northern frontier between the German lands, now wholly Christian and united in one Empire, and the heathen Danes nearly coincided with the line from the Eider estuary to Kiel Bay, which was later the boundary between Holstein and Schleswig. The Eider remained the frontier between Christendom and heathendom for a century and a half, when the Danes became Christian, the city of Schleswig being made an episcopal see in

948 A.D. In 1104 A.D. the Papacy made the Church in Denmark nationally independent by the creation of an archbishopric within the kingdom, which was thus in direct relation with the Holy See without other ecclesiastical superior.

The union of Schleswig with Holstein as the "Elbe Duchies" was not the result of a forward policy on the part of Germany but of a movement away from the Danish Crown on the part of the Schleswigers. The wholly incompatible conditions of the frontier of Christendom and heathendom no longer obtained, and Schleswig with Holstein constituted an economic unit fitted to be the rival of the Danish islands and Jutland as a link between the North Sea and the Baltic. Moreover, the estuaries, inlets and undrained marshes on either side of the neck of land from Lübeck to Lauenburg gave Holstein itself a peninsular character. The self-determining claim of the "Elbe Duchies" was a demand for union across a linguistic frontier. A King of Denmark only won his election as Duke of Schleswig by granting a constitution in which Schleswig and Holstein were declared to be "for ever one and indivisible." In the course of centuries the southern part of Schleswig became German-speaking, and the northern part bi-lingual. After the Great War the former was confirmed to Germany, the latter divided into two zones for separate plebiscite. The voting followed linguistic lines, the northernmost part going to Denmark, the southern to Germany.

That part of the Duchy of Schleswig which is now included in Denmark has lost its old name, being called the South Jutland Provinces. The truncated German province Schleswig-Holstein retains its name, and the city of Schleswig is its capital.

These events clearly indicate that the later development of national sentiment in the Elbe Duchies has followed a different course from that in Switzerland and Belgium, local patriotism having given way before the linguistic conception of nationality.

THE INTERNATIONAL SITUATION

DISARMAMENT NEGOTIATIONS

THE wearisome and provocative discussions and negotiations aimed at agreed limitation of armaments drag on, but it must be obvious by now even to the most patient diplomatist that the longer they continue the more ill-feeling they create, the more alarm and anxiety they cause, and the less prospect there is of any settlement which will be either effective or pacifying. The situation and view point of the principal Powers may be summarised as follows :—

GREAT BRITAIN.

Subsequent to the Revised Proposals for Disarmament published on 31st January, an outline of which was given in last quarter's JOURNAL, Mr. Eden, Lord Privy Seal, visited Paris, Berlin and Rome to consult the French, German, and Italian governments and ascertain their views. The British proposals cannot be said to have been received favourably, and subsequent communications indicate that there is no chance of their being accepted.

At home, the Government are being pressed continually to face the fact that the Disarmament Conference has failed, that our example in reducing our fighting Services has not been and will not be followed, and that steps should therefore be taken immediately to retrieve what has become a very dangerous situation for Britain and the Empire.

While admitting that the disparity between British defences and foreign armaments cannot continue indefinitely, the Government is alive to the fact that there is an appreciable section of the electorate in this country who are inveterate pacifists, ignorant of what risks are being run, and only anxious to see money saved on armaments in order that it may be available for social services. It is clear, too, that the Government's political opponents are endeavouring to make capital out of the failure to achieve an international settlement on the subject of arms—regardless of the fact that the problem has proved beyond the wit of any Government present or past, British or foreign, to solve.

Apart from political influences at home, Britain has been deeply committed by her representatives at Geneva to supporting the Conference so long as there is any hope of it achieving results. This, unfortunately, makes it difficult for the Government to take what would appear to be

the very practical and necessary step of naming a date beyond which we would not be prepared to waste further time and money on fruitless discussions. Were this done it would at least clarify the issue ; it might even produce an eleventh hour agreement. France might fear isolation and be less uncompromising ; Germany might apprehend French intervention before she could re-arm ; and the two principal obstructionists might think it desirable to come to an agreement while there was yet time. At worst, the termination of the Conference would enable us to know where we really stand, and would sweep away much of the opposition to what is still regarded in some quarters as unnecessary rearming.

As matters stand, the Government will not go beyond Mr. Baldwin's undertaking that " If all our efforts fail and equality be not possible to obtain, the Government will see to it that in air strength and air power this country shall no longer be in a position of inferiority to any country within striking distance of our shores."[1]

FRANCE.

The reaction of France to the latest British proposals can only be described as definite and uncompromising. She rejected altogether the principle that parity should be achieved by the partial rearming of some Powers and the partial disarming of others ; she refused to agree to any limitation of her armaments without a guarantee that the Convention would be respected ; she is not satisfied with the British proposal for " consultation " in the event of the Convention being broken, and reiterates yet again her demand for practical assistance against an offender. She rejects Hitler's assurance as to the non-military character of the Storm troops, and insists that they should be included in calculating Germany's effectives. She also makes a point of Germany's return to the League before agreeing to any arms convention. She is prepared to accept the British proposal for the abolition of military aircraft, provided there is effective international supervision of civil aircraft—whatever that may mean !

In a later note,[2] France says that by the recent increases in German military, naval, and air estimates and by their policy in regard to para-military organizations, the basis of the negotiations which have been proceeding outside the Conference has been destroyed. France has virtually ignored the British request for more precise details as to what " guarantees of execution " she proposes, and falls back on her

[1] House of Commons, 9th March ; this pledge was renewed by the Prime Minister on 25th April, 1934.

[2] Presented to the British Chargé d'Affaires in Paris by the French Foreign Minister on 17th April, 1934 (*The Times*, 19th April).

predilection to take shelter behind the League in further discussions, by saying that it is now for the General Commission of the Disarmament Conference to decide whether or not disarmament is any longer possible, and, if not, to state the reasons so that the world may form its own conclusions.

In other words, the French Government, too, is anxious to avoid the onus and odium of being responsible for the final breakdown of the Conference.

GERMANY.

In a German note handed to France on 13th March, after replying to certain details, the view was expressed that there were only two alternatives; either an agreement that the nations would not increase their present armaments for five years, or a longer agreement involving a measure of disarmament for countries other than Germany. It was maintained that everybody acknowledged that she could not be restricted to the armaments prescribed by the Versailles Treaty—unfortunately "everybody" does not include France, who bitterly resists and resents any relaxing of the Treaty conditions.

On the publication of the German defence budget for 1934, it was observed that there was an increase in her naval estimates amounting to £2,500,000, in her army estimates to £8,750,000, and in her Air Ministry estimate to £6,600,000 as compared to the previous year. The British Government subsequently requested an explanation of these increases. In reply, the German government observed that the Treaty of Versailles contained no limitations regarding expenditure on arms; the increased military expenditure was necessary to meet the cost of transforming the Reichswehr into a short service Army; the naval expenditure was to meet replacement of obsolete ships; the expansion of the civil air budget was due to reasons of both a technical and political nature.

Germany's military activities have, naturally, created much resentment and anxiety in France; there is no reason to believe she is exceeding Treaty conditions in regard to warship construction; the continued development of her air resources is the aspect of these increases which must cause us most concern and which should be very closely watched. Germany aims at an air force equal in strength to 40 per cent. of the combined air forces of France, Poland, and Czechoslovakia. This would be vastly stronger than the existing British Air Force.

ITALY.

On the occasion of the "Quinquennial Assembly of the Regime" on 19th March, Signor Mussolini in a speech said "The League must reform itself on the conclusion of the Disarmament Conference. But as that

has apparently failed, there is perhaps no longer any need to reform the League, but rather to register its death." He added that Italy wishes for disarmament, but must be strong enough to face any situation.

THE CONFERENCE

The Bureau met on 10th April, and against the wishes of the British delegates who desired a further meeting of the Bureau on 30th April, it was decided to call a meeting of the General Commission on 23rd May.

THE PROBLEM OF THE SAAR

By MAJOR B. T. REYNOLDS, M.C., Royal Artillery (retired).

THE Treaty of Versailles lays down that a plebiscite is to be held in the Saar territory in 1935. All persons who were resident there in 1919, and who will have attained the age of twenty years on the date of the plebiscite, are to be given the opportunity of recording their vote on three alternatives :—

(1) Maintenance of the present regime under the League of Nations.
(2) Union with France.
(3) Union with Germany.

Following on the plebiscite, for the fair conduct and good order of which the League is responsible, that body is charged with the duty of deciding as to the disposal of the territory, "taking into account the wishes of the inhabitants as expressed by the voting." Finally, the League will probably be called upon to determine various economic adjustments to be made after the plebiscite. All things considered, and bearing in mind the history of the Upper Silesian plebiscite in 1921, the League is faced with a formidable and ungrateful task. Hitler's repeated declarations on the subject show the great importance that he attributes to the issue. French public opinion, too, inevitably attaches considerable weight to it. It is no exaggeration to say that the disposal of the Saar territory is one of the major issues in European politics to-day. This country is involved as a member of the League and the League Council, and on account of British interest in the maintenance of peace in Europe, particularly in connection with our obligation under the Treaty of Locarno.

Some knowledge of the history of this part of the world is essential to any understanding of the real nature of the problem. Situated on the northern borders of Lorraine, and on the direct route from Paris to the strategical point of Mainz, the junction of Rhine and Main, the valley of the Saar lies across the line of march of a French army invading

South Germany. At the close of the Thirty Years' War the French overran this territory. The town of Saarlouis owes its origin and name to a fortress built by Vauban in 1680 for Louis XIV. Saarlouis and a small area round it remained in French hands throughout the XVIIIth century. At the outbreak of the French Revolution, the French once more overran the Saar and realized the dream of Louis XIV by extending the national frontiers up to the Rhine. During this period and up to 1814, the Saar was administered as a French Department, and enjoyed considerable prosperity from its coal mines and manufactures. The youth of the Saar, as of the other French Departments in the newly incorporated territory, served in the French armies, and there is no record of their being anything but loyal to their new flag. Perhaps the most famous recruit that this territory brought to the French colours was Marshal Ney, who was born in Saarlouis. The Treaty of 1814 left Saarlouis and Saarbrucken in French hands, and is of more than contemporary interest as having formed the basis of the claim put forward by France to this territory in 1919. After Waterloo, however, the French frontier was pushed back to approximately the line that it follows to-day. The greater part of the Saar territory went to Prussia, a smaller portion being included in the Bavarian Palatinate. A certain number of the inhabitants with pronounced French sympathies emigrated to France, and the new arrangement occasioned some disturbance in the economic life of the country, but by 1830 the adjustment had been made, and the Saar had settled down to its new status. The revolutionary wave of 1848, which saw the barricades in the streets of Berlin, occasioned comparatively little excitement in the Saar, whose inhabitants contented themselves with some demonstrations in favour of German unity.

In the opening stages of the war of 1870, Moltke's blow fell on the northern boundary of the salient formed by the frontiers of Alsace and Lorraine, and there was heavy fighting at the Spicheren Heights, just outside Saarbrucken. A glance at the map shows the strategical advantage that the possession of the Saar conferred on Germany in this campaign. In German hands the Saar has always represented a jumping-off place for the invasion of Lorraine and an obstacle to a French invasion of Germany. In French hands the position is reversed, and the possession of the Saar opens the way to Mainz and the Main valley, which still retains all its old importance as a strategical objective.

The cession of Alsace and Lorraine to Germany in 1871 considerably increased the importance of the Saar coalfields. The iron ore of Lorraine and the coking coal of the Saar were united inside the same customs frontier, and the Saar enjoyed even more than its share of the phenomenal

rise in industrial activity that took place in Germany in the latter part of the XIXth century. Long before 1914, the descendants of the original Saar inhabitants, who may still have retained some sentimental memories of the French occupation, had been completely submerged under the flood of immigrant officials, engineers, business men, miners and others who had drifted in from other parts of Germany.

By the Treaty of Versailles in 1919, the Saar coal mines were ceded by Germany to France for a period of fifteen years, as compensation for the destruction wrought by the German armies in the French mines of the Pas de Calais. As it would have been difficult for the French state to work mines in territory under German sovereignty and jurisdiction, the government of the Saar was vested in a Commission appointed by and responsible to the League of Nations, and the arrangements mentioned above were made for ascertaining the wishes of the inhabitants as to their future when the fifteen years had expired. With the return of Alsace and Lorraine to France, the Saar coal was once more united to the Lorraine ore, but, this time, one of the partners had the option of repudiating the marriage contract after a trial period.

For its size, the Saar is one of the most thickly populated industrial districts in Europe. It supports over 800,000 inhabitants, almost entirely German-speaking, of whom from 60 to 70 per cent. are Roman Catholic. Some three-quarters of these people are dependent for their livelihood on the industries of the territory, which, besides coal mining, include metal, glass and pottery. As the Saar lay on the lines of communication from France to the French armies of occupation in the Rhineland, the French, not unnaturally, insisted on the right of maintaining troops in the territory for the protection of the railways. This, and the repressive measures, in which the active sympathy of the inhabitants with the Germans of the Rhineland and the Ruhr in their struggle against the French separatist designs inevitably involved the Governing Commission, gave rise to considerable unrest in the Saar, and led to a flood of petitions to Geneva. But, after the evacuation of the Ruhr and the conclusion of the Treaty of Locarno, the Saar settled down once more to make the best of the present régime, in the confident anticipation that the plebiscite of 1935 would reunite the territory with Germany. At this time it appears to have been generally believed on both sides that the result was a foregone conclusion, and Stresemann even opened conversations with Briand with a view to obtaining French consent to anticipating it. But, while the French armies still remained on the Rhine, nothing could be done. By the time that the Rhineland was finally evacuated in 1930, and the last French troops also withdrawn from the Saar, the position had altered materially.

The present economic position is that the Saar is included in the French customs frontier but, in addition to special arrangements for the sale of Saar products in France, provisions also exist favouring Saar exports to Germany. At the moment, the Saar steel industry is largely dependent on the Lorraine iron ore and *vice versa*. The debatable territory is being courted by both sides, and is consequently enjoying the best of both worlds. The standard of living of the Saar workers is said to be higher than that obtaining in either France or Germany, and unemployment is less; but it has been suggested that the industrial efficiency of the Saar mines and factories compares unfavourably with that obtaining in less fortunate lands. Whatever may be the result of the plebiscite, it is difficult to see how this advantageous state of affairs can continue for long.

Up to the advent of Hitler to power in Germany, all political parties in the Saar were united in their desire for reunion with Germany, and it was generally considered that the mines of the Saar represented a wasting asset in French hands. One of the curious results of the *Gleichschaltung*, carried out by the Nazis in Germany, has been to cast considerable doubts on the continuance to-day of this happy unanimity in the Saar. Where, before, a solid poll in favour of re-union with Germany would have been something of a blow to French prestige, the situation now is that anything less than this would represent an obvious setback for Nazi Germany and, as such, would weaken the prestige of Hitler—an important matter for any dictator. This may supply the reason why Hitler has again attempted to open direct negotiations with France for the return of the territory in anticipation of the result of the plebiscite; but France has so far refused to oblige him.

The strictly legal position appears to be that there are no grounds for delaying the plebiscite beyond the appointed time. But, if both the parties concerned agreed to its postponement, it is reasonable to assume that the Council of the League would raise no objection. The holding of the plebiscite presents obvious difficulties. The Saar gendarmerie, consisting of about a thousand men recruited locally, would scarcely suffice for maintaining order and ensuring a fair poll. It would probably be necessary to draft in foreign troops as was done in Upper Silesia, or to recruit a special force of gendarmerie under the League. There would then remain the question of the disposal of the territory, a large portion of which would probably still vote in favour of union with Germany; the disposal of the mines—and it is difficult to see how the German state could now raise the funds to repurchase these, as required under the Treaty; and the economic settlement.

It may well be that it is better to face these difficulties and get this exceedingly vexed question settled and out of the way as early as possible. On the other hand, it may be assumed that there is hard bargaining going on at the moment, and that this probably ranges over the whole of the outstanding questions between France and Germany. But unless Germany can find some means of stimulating her export trade, it is difficult to see how, in the event of reincorporation with Germany, the Saar industries could fail to find themselves exposed to the full blast of competition with the industry of the better equipped Ruhr district. In this event the last state of the Saar might well be worse than the first. But, even so, the present position of uncertainty must be highly trying for all concerned, and very detrimental to the industrial efficiency of the area.

THE FAR EASTERN SITUATION

JUST a year ago General Araki, then War Minister of Japan, published in the Japanese Press his views as to the future of his country in Asia. His expressions were clear, and could give rise to no ambiguity; he spoke of the great task before Japan and the duty of every Japanese never to lose sight of Japan's mission on the Asiatic continent. These statements were reproduced in an exaggerated form in the printed leaflets dropped by Japanese aviators during their operations in Manchuria and North China: "The white race has reduced the countries of Asia to areas of exploitation and despotism. Imperial Japan can no longer permit these unspeakable excesses to go unpunished. Japan has a divine mission to fulfil . . . . Our Empire represents the embodiment of law and justice . . . ."

Later declarations of an official nature made in Japan though never so outspoken, confirm this attitude of mind, and the world is now faced with a virtual Japanese claim to be regarded as the dominant Power in the Far East. A recent published statement of this opinion stands much on a level with the maintenance of the Monroe Doctrine by the United States in the American continent.[1]

The effect of such a policy can only be to aggravate the conflict of interests between Japan and the Soviet Union in northern Manchukuo and the adjacent regions, which has long been exemplified in the struggle for the possession by Japan of the Eastern Chinese Railway. It is, therefore, of interest to consider the military and air situation as it now exists along the Manchurian frontiers.

[1] See Mr. Hirota's statement in the Japanese Diet on 23rd January of this year and subsequent explanations.

On the whole it would appear that in any armed conflict with the Soviet Union, Japan would act defensively at sea and offensively on land in Manchukuo. It would not be necessary for the prosecution of war against Russia for her to pursue a policy of aggression in the Pacific—a course which might bring her into conflict with the United States; neither would she have any interest in extending her commitments in the direction of Australia. There remains, however, the fact that Japan draws a large proportion of her oil from the Dutch possession of Borneo.

From a military point of view the central position of Manchukuo is clearly defined. The Soviet Union's frontier, chiefly the great River Amur, forms a semi-circle round northern Manchukuo. But the chief weakness of that position lies, firstly in the lack of communications on the Russian side, and secondly in the isolation of Vladivostok at the end of the long strip of country lying between the River Amur and the sea. There is little doubt that any Japanese operations on land would open with an attack on this district. This is all the more probable since Vladivostok forms a possible air base from which long range aircraft might be employed to bomb Japanese towns and ports, both in the home country and in Korea, whilst that port would also form an invaluable submarine base for action against Japanese trade and military sea-borne transport.

It is no doubt for this reason that the Soviet Union has selected as its main military base in the Far East the town of Khabarovsk which stands at the great bend of the River Amur, some 400 miles North of Vladivostok. At Khabarovsk the Soviet Union is now erecting an immense oil refinery, while large iron foundries and steel works are understood to be in hand. In addition a gigantic soap factory, readily convertible to the production of war chemical material, is to be taken in hand. Military reservists are being encouraged to migrate to the Amur districts. Similar developments are understood to be in progress at Irkutsk on Lake Baikal; this town would thus appear to have been selected as the ultimate Soviet base for any operations conducted on the north-western frontiers of Manchukuo, much as Khabarovsk would be utilized for operations conducted on the north-eastern side of that state. At both towns, more particularly at Irkutsk, an intensive programme for the construction of metal and food factories is to be put into effect.

The Soviet forces in the Far East now comprise the best elements of the Red Army. They are commanded by General Blücher, who has risen from the ranks and is regarded as the Soviet's best leader; he once actually commanded the Chinese Communist army at Canton and knows the Far East intimately. The Japanese now estimate the forces under

his command at 10 divisions, 300 tanks and some hundred aeroplanes[1]—a formidable fighting force. It is also believed that numerous submarines have also made their way to Vladivostok from Europe.

On the Japanese side it was officially stated that in early February the Japanese troops in Manchukuo amounted to only 50,000, while the Manchukuo army was given at 100,000. General Blücher, however, has alleged that the Japanese troops are twice as numerous, whilst he estimates their aircraft to number at least 500, and that these are based on some 50 aerodromes. But the proximity of Japan to Manchukuo renders the significance of these figures somewhat nugatory.

It is of importance to note that both the Japanese navy and air force are almost wholly dependent on oil fuel imported from the Dutch island of Borneo. The total Japanese consumption *in peace time* exceeds 1,600,000 tons per annum; of that quantity Japan derives less than a quarter from the island of Formosa, the balance coming from Borneo. Oil supplies also exist in the northern (Russian) part of Sakhalin; these are operated by Japanese concessionaires.

Another matter of interest is the possible Japanese use of the Mandated groups of the Marianne, Marshall and Bonin Islands. Japan has already declared that she would refuse to hand these back to the League of Nations and that she regards them as part of her Empire. Although they are not known to have been fortified, no secret is made of the fact that air bases are being developed in them. The latter, it is asserted, are for commercial purposes only, but obviously they could be used equally well for Service aircraft. These islands may become a threat to the United States communications with the Philippines, whilst shielding the Japanese imports of oil from Borneo.

It should also be remembered that a great portion of northern Manchukuo might be regarded as unexplored; there certainly exist no maps of those regions, and much of it is most difficult, if not impossible, military terrain. The most probable scenes of a land conflict thus appear to lie at either extremity of the Eastern Chinese Railway or along the old caravan route leading to Blagoveschensk on the River Amur. The cold can be intense in these parts, so great in fact that the broadest rivers will freeze and then carry heavy military traffic.

But both for Japan and the Soviet Union there are many most difficult problems that might well delay any rash action or even a trend towards hostilities. The Russians probably do not regard a possible war

[1] It is worth noting that the Japanese official estimate of the peace establishment of the Soviet forces is placed at 1,300,000, whereas the Soviet Government has given out the same total as 540,000.

with Japan with much greater enthusiasm than they did in 1904, and the Red Army is as yet an untried quantity. The efforts needed to bring a modern war to a successful end in Manchukuo can hardly be calculated in advance. On the other side, would Japan dare to undertake a prolonged campaign in North Eastern Asia in view of her economic and political internal condition? Would not even partial failure, or any resultant weakness expose her to a fate similar to that which overtook her in 1905? There are so many uncertain factors in the problem and the risks on both sides are so great that it is improbable that either Power will resort to arms unless some incident or clash of interests precipitates a crisis. It should, however, be remembered that from a purely military point of view the military expansion of the Soviet Union is now assuming dimensions which might prompt Japan into taking action whilst she still possesses so many of the advantages that are now on her side.

THE WAR IN THE CHACO

FOR over four years hostilities have been maintained in the Chaco-Boreal region by Bolivia and Paraguay, and there still seems not much prospect of any settlement being attained except from the effects of exhaustion. Bolivia had attached great hopes to her air force which outnumbers that of Paraguay to the extent of over five to one, but as the theatre of operations is situated in virgin forest, the Bolivian aircraft are virtually blind and are chiefly being used for purposes of transport.[1] Bolivia, also, possesses a mining population and has shown some superiority in trench warfare and siege operations. But in spite of these advantages the Paraguay forces have secured far better results than the Bolivian troops. On 11th December a Paraguayan success compelled the Bolivians to sue for an armistice and to give up some ground, but this did not lead to peace; so hostilities were resumed.

On 22nd February the League of Nations Commission handed to the representatives of the belligerents proposals for a solution of the quarrel. But the Commission failed to effect a settlement and returned to Europe on 15th March.

On 28th March it was officially announced in Paraguay that a victory had been won on the River Pilcomayo in which about 1,000 Bolivians were captured. Again on 13th April more heavy fighting began—of a nature, it was reported, sufficiently heavy to bring the war to an end. But there is still no declaration of peace in view.

[1] See "The Chaco War" in the JOURNAL of February, 1934, p. 139.

CORRESPONDENCE

[*Correspondence is invited on subjects which have been dealt with in the* JOURNAL, *or which are of general interest to the Services. Correspondents are requested to put their views as concisely as possible, but publication of letters will be dependent on the space available in each number of the* JOURNAL.—EDITOR].

MILITARY UNIFORMS.

Considerable additional correspondence has been received on the subject of Military Uniforms, and Major Mackay-Scobie and Colonel R. F. H. Wallace have made further replies to Major Stacke regarding details of the dress of Highland Regiments.

The Editor regrets that space will not permit of the discussion being prolonged in this JOURNAL, but arrangements have been made with the Society for Army Historical Research to take up the more important points which have been raised in their Journal. Further comments or queries relating to the subject should, therefore, be addressed to the Editor of the Journal of the Society for Army Historical Research, The War Office Library, Whitehall, S.W.1. They should be as brief as possible and put in the form of a note or question.

INDIAN CAVALRY REGIMENTS.

TO THE EDITOR OF THE R.U.S.I. JOURNAL.

SIR,—With reference to Major Stacke's lecture on uniform, may I point out one error? He carries on the fallacy that irregular native cavalry did not mutiny, while the regular did do so. This impression is very general, and can be ascribed not so much to the events of the Mutiny as to the events of its suppression. In the suppression only one regular corps (First Bombay Light Cavalry) was seriously employed, the whole of the rest of the native horse being irregular. When a regular regiment failed, that fact was published from the housetops. In the case of an irregular corps, on the other hand, some form of indiscipline—and, not infrequently, of grave misconduct—was so usual as to be accepted as a normal state of affairs. In such corps it was an easy matter to screen undesirable happenings, for there were only two, or, possibly, three white officers, while regular regiments had as many as seventeen or eighteen; and those of us who know native troops are well aware of the ease with which things can be kept quiet in an Indian corps.

The irregular corps engaged in the suppression of the Mutiny had, almost without exception, very outstanding characters in command—Hodson, Daly, Merewether, Malcolm and Chamberlain. Above all, they were, with the exception of Skinner's and the Sind Horse, all recruited from races not merely alien, but strongly antipathetic to the mutineers. Both the latter corps had great traditions and were devoted to their British officers.

There were, in India, twenty-one regular and thirty irregular regiments at the outbreak of the Mutiny. Of the ten regular and eighteen irregular Bengal corps,

five regular and ten irregular definitely mutinied. The 8th Madras Cavalry, regular, "passively resisted," and was promptly disbanded, but the irregular corps of the Hyderabad Contingent gave no small amount of trouble at first, though it did excellent work later on. The cult of the irregular, at the expense of the regular, was a false lesson imbibed from the Mutiny. The cavalry fighting was never serious, and the charges that took place were either made against miserable sepoys who did not want to fight—90 per cent. would never have mutinied—or else when "bushwhacking." For such work any reasonably brave scallywags would do. Irregulars, in the heavy fighting of the Mysore, Mahratta and Sikh Wars, time and again had been found to be useless, and it was the fruit of bitter experience that the Bengal irregulars were regularised in 1796; otherwise they would never have stood the strain of Delhi, Laswari and Deeg. The Madras cavalry had been regularised, for similar reasons, twenty years previously. The Bombay cavalry were raised on the regular principle on Wellington's recommendations—for he had no use for irregulars for serious work.

History repeats itself, and but few of us who knew the hybrid "regularised irregular" of 1914 regretted that we had eighteen months' steady training and discipline before we were called upon for serious work in France.

E. B. MAUNSELL,
Colonel.

THE SALE OF WAR MEDALS AND DECORATIONS

TO THE EDITOR OF THE R.U.S.I. JOURNAL.

SIR,—It is extremely painful to see the open sale of British decorations and war medals; not only is this a pathetic spectacle in itself, but the value of these medals is so small that the amount received by their owners can only be trivial. The fact that certain shops are full of them, often in a very dirty state, lowers the value of these honourable rewards to those still able to retain their own and to the relatives of those who earned them but have since died or were killed in action. Some regiments maintain a fund for the purchase of the medals of any ex-member of the regiment that may come into the market rather than see them exposed for sale. This is one of the minor signs of a high *esprit de corps*; but, unfortunately, in the Great War, some of the best regiments raised the largest number of battalions, therefore the number of medals coming into the market must be too large for even the wealthiest regiment to buy in.

Could not, therefore, some Member of Parliament—preferably one with a first-rate front line record—introduce a Bill in the House to forbid the purchase, exposure or offering for sale of any British orders, decorations or medals issued within a period of fifty years. This would not prevent the sale of those which were merely of a mild sentimental interest to distant relatives or possibly descendants, whilst it would add to the respect attached to medals worn by men who had earned them. Incidentally, such a measure should add to the value and interest of old medals to collectors.

Most old soldiers wear their medals with pride as an outward symbol of their service under fire, and one is reminded of the old Dutch farmer who always wore the two South African ribbons on the ground that he, also, had taken part in the Boer War—on the other side. But the value of these ribbons is not enhanced when the medals can be obtained for a few pence in any pawnshop. The recent multiplication of decorations and medals of all kinds has augmented to an incredible extent the number offered for sale, while the prevailing depression has

yet further glutted the market. It is a matter affecting so many millions that it should not be one of indifference to the public.

The idea might even be carried a step further. The cost to the country would be negligible if the Government were to constitute itself the only legal purchaser of medals issued within the last fifty years. The individual medals might acquire a minimum and possibly a slightly artificial value, and they could be retained by the Government for a certain fixed period and be re-purchasable by the original owner or his proved next-of-kin within that period for the sum originally obtained for them without interest. When the period of retention expired the medals and decorations could be melted down, part of the purchase price being thus recovered to the nation and a greater value added to the remaining medals. This period of retention should be, say, twenty-five years. There would then be a gap of only a very few years before the medals of a campaign could be legally put on the market.

What applies to the Mother Country applies with equal or even greater force to the Dominions. Recently the writer heard an American, on seeing a string of orders and medals that once belonged to a distinguished officer, say " Oh ! you can pick those up for a few cents apiece anywhere." He was right, and it is a reflection on us that it should be so ; while it lowers our prestige abroad. If Great Britain set the example of prohibiting the sale of medals and awards for the period suggested, the Dominions, in all probability, would readily fall into line and carry out similar legislation.[1] In the immortal words of General Sir Charles Napier on a somewhat similar subject, " It is never too late to do a good thing."

Vancouver,
British Columbia.
January, 1934.

T. V. SCUDAMORE,
Major.

[1] A Bill to prohibit the sale of war medals has recently passed a second reading in the Provincial Parliament of Ontario.—EDITOR.

GENERAL SERVICE NOTES

A MINISTRY OF DEFENCE.

AN AUTHORITATIVE PRONOUNCEMENT.

The following is an extract of an important speech by Lord Londonderry, Secretary of State for Air, replying on behalf of the Government to a motion in the House of Lords on 14th March, on a Ministry of Defence :—

" This is a subject of considerable interest and of first-class importance, and one on which the public is entitled to the fullest information. The noble lord desires to satisfy himself as to whether an efficient co-ordination exists between the three defence Services, or whether the system at present in existence can be improved by the establishment of a Ministry of Defence presided over by a Cabinet Minister with three junior Ministers controlling the three Services.

I might begin by giving a brief historical sketch of the sequence of arrangements which have culminated in the system in practice now, and then proceed to explain the machinery by which the best system of co-ordination is being practised at this moment.

Historical.—At one time the conduct of war was entrusted to the Department of War and Colonies, and this system remained in being until the Crimean War, when the terrible inefficiency of the Army was only counterbalanced, as Kinglake tells us, by the fighting qualities of the soldiers.

At the time of the South African War, the War Office was still not a satisfactory machine, and as a result of criticism the Esher Committee was appointed and the whole war administrative machine was thereby overhauled. The War Office organization was approximated to that of the Admiralty, and to-day the systems of those two Departments and of the Air Ministry are in outline very similar.

The Esher Committee, however, did not limit itself to the overhaul of the War Office. In its first report the Committee pointed out that :

> " The British Empire is pre-eminently a great Naval, Indian and Colonial Power. There are, nevertheless, no means for co-ordinating defence problems, for dealing with them as a whole, for defining the proper functions of the various elements, and for ensuring that, on the one hand, peace preparations are carried out upon a consistent plan, and, on the other hand, that, in times of emergency, a definite war policy based upon solid data, can be formulated."[1]

Following the Committee's recommendations the Committee of Imperial Defence was set up, not only to meet these particular needs, but also generally for the purpose of co-ordinating the whole of our defence preparations. That work of co-ordination was immensely developed during the years preceding the War. At the present time it is not an exaggeration to claim that the objects for which the Committee of Imperial Defence was established are completely fulfilled.

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[1] Cmd. 1932 of 1904.

In the early part of the War the machinery of the Committee of Imperial Defence was utilised for the various bodies that directed the War effort as a whole which were known successively as the War Council, the Dardanelles Committee, and the War Committee. After the change of Government, in December, 1916, the War Cabinet was formed, which absorbed the powers of the Cabinet and employed the machinery of the Committee of Imperial Defence, and the same system was later extended to the Imperial War Cabinet which co-ordinated the War effort of the Empire.

After the War, we reverted to the pre-War system of the Committee of Imperial Defence, strengthened in the light of war experience by the recommendations of a Committee presided over by the Marquess of Salisbury in 1923.[1] Since that time there has been an immense increase in co-ordination, to which I shall refer later.

From 1918 to 1921 an experiment took place which has some bearing on a Ministry of Defence. During those years there was a single Secretary of State for War and Air, with a deputy Minister in the Air Ministry. The unsatisfactory nature of this arrangement was developed in the House of Commons on 12th November, 1919, in the personal statement made by General Seely (now Lord Mottistone) on his resignation of the post of Deputy Minister.

Lord Mottistone has described the arrangement as "inefficient and wasteful" and "inimical to the interests of the Air Service." If that was true of one Ministry and in a case where the Secretary of State was a statesman of exceptional experience and of great industry, and when his Deputy was one of his most intimate friends, it would be infinitely more true of the Ministers who would come together in the ordinary course of affairs when there were three deputies working under one Minister of Defence. That was the time after the War, when the Air Force sank to its lowest point. The large and efficient Air Force with which we came out of the War was ruthlessly cut down; there was hardly any Air Force, and, within a year or two after a separate Secretary of State for Air had been appointed, we were compelled by actual national danger, revealed as the result of an Inquiry at the Committee of Imperial Defence, to start to recreate our Air Force. The plan of control by a single Secretary of State of two Departments, with a Deputy in one, was recognised as a failure and was dropped in 1921.

I may mention that France has tried a system of a Ministry of Defence. On the formation of the Tardieu Government, in February, 1932, the Ministers of the three Fighting Services were replaced by a Minister of National Defence, assisted by Under-Secretaries. The experiment, however, was I gather, not a success, and with the change of Government in June, 1932, there was a return to the former system of a Minister for each of the three fighting services. Co-ordination is secured by machinery not unlike our own Committee of Imperial Defence.

A Minister of Defence in Peace.—However, let us assume that it has been decided to set up a Ministry of Defence with a single Minister at its head. Let us consider what his duties would be in time of peace. First of all, he would have to attend the Cabinet, to speak on all Service questions with full knowledge, and, in addition, to watch all questions which re-act upon the defence Services—matters of foreign, Indian and Colonial policy, and so forth. The Minister can only do that if he is very well up in all aspects of Service questions; otherwise, he would sometimes not be sufficiently informed to realise that one or other of his Services

[1] Cmd. 2029 of 1924.

is affected. He will have to be a member not only of every Cabinet Committee on all or any of the defence Services or their branches, but also of many of those dealing with matters of Disarmament, Foreign, Middle East or Colonial policy, and many other matters in which the Services are concerned, whether in the first or the second degree. He will have to represent the Services at the meetings of the Committee of Imperial Defence and be a member of its Sub-Committees, taking part quite frequently in long and detailed enquiries, in which he will have to speak for all three Services. If he is a member of the House of Commons he will have to speak on all aspects of the Services and answer a great many questions.

One of the most important duties of a Service Minister is to visit and inspect the different establishments for which he is responsible. There is no other way by which he can make those personal contacts with officers and men of the Services and with the numerous forces and establishments, industrial and otherwise, under his control. These visits are essential if he is to be familiar with his subject and to be in a position to administer his Department with knowledge, efficiency and economy. These inspections are of the greatest importance in connection with the making of high appointments in the Services. Many of the appointments of the Defence Services require very special qualities, for on the holders are thrown quasi-diplomatic tasks of a delicate character in many parts of the world. As these appointments become due, it is vital that the Minister should have first-hand knowledge of the individual and not have to rely entirely on second-hand information. If it is important in peace, it is even more important in war. How is a Minister of Defence ever to have knowledge of the personnel of three Services, since he will never have time for proper inspections?

At times, the Minister at the head of the Defence Departments may have to attend international conferences abroad. On one occasion, Lord Lee was absent for several months at the Washington Naval Conference. The Disarmament Conference at Geneva has made a heavy, and at times an embarrassing, demand on the time of the Service Ministers. How is a Minister of Defence to look after the affairs of three Services, when his whole pre-occupations may have to be given for months together to a Disarmament Conference, or some other Conference at which his presence is essential?

Deputies.—One suggestion for surmounting the difficulty is that the Defence Minister should have deputies. That is a most unsatisfactory arrangement. The deputy Minister's position must inevitably be anomalous. He cannot settle any considerable question or fill any important appointment. He is merely an extra piece of machinery, interposed between the staff or the permanent advisers and the Minister. The principal officers of the three Service Departments cannot be expected to accept decisions on questions of policy from a deputy Minister. They will rightly insist on having a decision direct from the head of the Department and on maintaining personal contact with him. Yet a Defence Minister will not be fitted to take those decisions unless he is carrying on the day-to-day routine work of a Cabinet Minister at the head of a Department. Neither economy nor efficiency will be promoted by over-centralization, and the whole tendency of modern administration is in the other direction. There is a definite limit to wise rationalization, and that limit would, in my judgment, be passed by any attempt to set up a single Ministry of Defence.

The Tendency of Administration.—As I have already said, the tendency of modern administration has been the other way. In comparatively recent years, besides the Air Ministry and the Ministry of Pensions, there have been established

the Ministry of Labour, the Ministry of Transport, the Dominions Office, and sub-departments under the control of under-secretaries, such as the Overseas Trade Department and the Mines Department. These developments have taken place to meet an absolute necessity.

A Minister of Defence in War.—Now let us try and imagine the task of a Minister of Defence in a major war. The Cabinet, or War Cabinet, or War Committee, would be meeting every day and sometimes twice or thrice a day. They would set up many committees on which the Minister would have to sit. He would be expected to give these bodies at every meeting an appreciation of all the latest developments of warfare, of movements of the forces, training and so forth in three elements. Apart from naval, military and air questions on which he would be expected to lead the Cabinet or War Committee, he would have to bring his mind to bear on the naval, military and air aspects of innumerable questions of Government policy and administration. He would have a huge administrative task to perform; great numbers of high appointments to make. The expansion of the three Services would raise innumerable problems of the greatest complexity, necessitating his personal attention. There would be much legislation for him to see through Parliament. At all hours of the day and night —as anyone who reads the published memoirs of statesmen during the War can see— most difficult and complex problems would present themselves, often simultaneously. Sometimes, as constantly occurred in the Great War, he would have to hurry away to some international conference or discussion. To anyone who has examined into the work of the supreme control in the Great War, the idea that one man could control it all is fantastic.

It is absolutely certain that in any major war the effective control of the three Services would, at a very early stage, pass beyond the capacity of any single Minister, however competent and industrious he might be. During the Great War we found ourselves compelled to carve out of the then two Service Departments, a Ministry of National Service, a Ministry of Munitions, a Ministry of Air, while several of the other new Departments derived part of their functions from the Service parts, such as the Ministries of Shipping, Blockade, and Information.

It is certain that in a war of this magnitude we should have to re-establish some at any rate of these Departments. To have to expand, in addition, from a single Defence Ministry into the three great Service Departments would cause the utmost chaos and confusion. Even that would be less serious than an attempt to try and control them by a single Minister.

A Superimposed Minister of Defence.—There is one form of Ministry of Defence not yet touched on, namely, a Minister superimposed on the existing organization. In effect, this would amount to the creation of a new Department, not necessarily a large one. The theory is that a single Minister would co-ordinate the activities of the three Services with their present Ministers without interfering with the existing organization. This proposal, however, brings difficulties of its own. The authority of the Ministers at the head of the Service Departments would be weakened by the existence of a super-Minister. They might well dislike his initiative or interference. They might be reluctant to bring their difficulties before him. If the Minister of Defence over-rules one of the Service Ministers, the latter would have the right of appeal to the Cabinet. In the Cabinet all are equal. and the protesting Minister or Ministers would have as good a chance as the Minister of Defence. In fact, the Minister of Defence would be a fifth wheel in the coach, and his position would be unenviable, unless he happened also to be Prime Minister.

Some idea of how the proposal for a superimposed Minister of Defence would work can be gained from experience in the Committee of Imperial Defence after the War. Before the outbreak of war the Prime Minister had invariably presided over the Committee of Imperial Defence, and during the War he presided at the various War Councils, War Cabinets and so forth. After the War, when successive Prime Ministers were immersed in international conferences and other overwhelming public business, several experiments were made in delegating part of the work to a Chairman. I am assured by those who are competent to speak, that under this system there was often a certain loss of authority, and attendance of members was less regular.

Since 1925, the Prime Minister of the day has regularly attended the Committee of Imperial Defence, and the authority of the Committee has automatically been re-established and its prestige fully restored. The fact is that no one except the Prime Minister carries enough weight to give the last word when difficult questions have to be decided. The work is not unduly burdensome because detailed work is delegated to sub-committees and the meetings of the Committee of Imperial Defence are not frequent. Nevertheless, the Prime Minister of the day always manages to keep an eye on the progress of the work of the whole organization. This is perhaps facilitated by an arrangement under which the Secretary to the Committee of Imperial Defence is also Secretary to the Cabinet, which enables him to keep the Prime Minister informed as to the state of the work of both bodies.

Another point worthy of mention is that, if war should occur, the conduct of the war inevitably becomes the main policy of the Government. No one can expound the main policy of the Government in Parliament with the same authority as the Prime Minister, and as far as I know, there was never a substitute for the Prime Minister in any democratically governed country. The Prime Minister will obviously be better equipped for such an emergency if he is at the head of the body which formulates for consideration by the Cabinet the general policy of the country on Imperial Defence.

Previous Enquiries.—There have been several previous enquiries since the War into the question of the Committee of Imperial Defence. A Committee presided over by Lord Weir in February, 1922, reported as follows :—[1]

> " We are of opinion that in existing circumstances the complete or partial amalgamation of the common services of the three Fighting Departments is not advisable, and we do not believe that any substantial economies would thereby be effected."

In 1924 a Sub-Committee of the Committee of Imperial Defence under Lord Salisbury reported that :—[2]

> " It is undesirable and impracticable to supersede the Ministerial heads of the three fighting Services by making them subordinates of a Minister of Defence ; the alternative plan for an amalgamation of the three Service Departments is equally impracticable."

As recently as 1931, the May Committee on National Expenditure reported that :—[3]

> " Our conclusion after careful review of all the evidence is that no substantial reduction of cost would follow from the creation of a Ministry of National Defence, and that on the contrary there would be a serious risk that the efficiency of the Services might be impaired by the alteration of system involved."

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[1] Cmd. 2649 of 1926. [2] Cmd. 2029 of 1924. [3] Cmd. 3920 of 1931.

It may be added that for many years the heads of all the fighting Services and of the Civil Service have been opposed to the idea.

The Present System.—Rather than make radical changes in our present system, with all the dangers of inefficiency and waste which that might entail, it is surely better to build on a system which proved very useful before the War; which was easily adaptable to the circumstances of war; and which has made vast strides since the War to meet the difficulties of co-ordination occasioned by the advent of a third Service. That system is now very complete indeed. Let me detail it briefly.

The Committee of Imperial Defence, as has often been announced, is a consultative and advisory body, composed, in strict theory, of the Prime Minister and whomsoever he chooses to invite to the Committee. In practice the Prime Minister, the Lord President of the Council, the Chancellor of the Exchequer, the Secretaries of State for Foreign Affairs, India, Dominion Affairs, Colonies, War, Air and the First Lord of the Admiralty, as well as the Chiefs of Staff of the three Services and the Permanent Secretary to the Treasury are ordinarily summoned. Other Ministers and other persons, including representatives of the Dominions, frequently attend. In recent years, attendance by Dominions representatives, when available, has been more and more frequent. The functions of the Committee are those which I have already mentioned in the recommendations put forward by the Esher Committee.

The Committee works mainly through a large number of Sub-Committees, which vary from time to time.

The aim of the Sub-Committee system is to place the Defence Services and the Defence functions of Civilian Departments in contact and to cover every phase where co-ordination is necessary by concerted arrangements, but without interference with the administrative responsibility of the several Departments.

Some idea of the principle of the Sub-Committee system may be gained by considering the organization of any of the Defence Service Departments. Each of them has under the political head of the Department, a Board or Council. The Committee of Imperial Defence, with the Prime Minister at its head, corresponds to this. Each Service Department has a First Member of the Board or Council, whose sphere of activity is defence policy, strategy, tactics, training. These are co-ordinated in the Committee of Chiefs of Staff. Each Department has a Second Member of the Board or Council, concerned with personnel. These are all members of a Man-Power Committee. Each Service Department has one or more member of the Board or Council dealing with different branches of supply and transport. These are united in the Principal Supply Officers' Committee. Each of these great pivotal bodies of the organization:

The Chiefs of Staff Sub-Committee;
The Man-Power Committee;
The Principal Supply Officers' Committee;

has a number of subordinate Committees planning and co-ordinating in a great variety of details.

It should be noted, however, that it has been found necessary to associate in the work of these Committees not only the Defence Services but Civilian Departments as well. The Prime Minister himself is the President of the Chiefs of Staff Sub-Committee, the most important body dealing with co-ordination of Service policy, although it is not necessary for him to attend its meetings except on special occasions. Nevertheless, he is in touch with its work.

The Man-Power Committee and the Principal Supply Officers' Committee are presided over by Cabinet Ministers, and include representatives of a large number of Government Departments concerned in their work. The object of these two Committees is to plan our arrangements in order to avoid the costly mistakes of the last war.

But besides the three great pivotal Sub-Committees already mentioned there are numbers of other Committees, each with its own complete organization, some including several Cabinet Ministers, and others only officials. They deal, among other subjects, with Home Defence, Overseas Defence, Middle East questions, Imperial Communications, Air Raids Precautions, all kinds of Censorship in war-time, the co-ordination of the whole for the possibility of a war emergency, and a variety of other matters relating to Imperial Defence.

Connected with the Committee of Imperial Defence and under the immediate supervision of the Chiefs of Staff Committee, except so far as administration is concerned, is the Imperial Defence College. Here senior officers of the three Services, as well as officers from the Dominions and India, and selected Civil Servants, both from this country and the Dominions, are trained for co-operation in Higher Staff work. It is interesting to mention that many of the graduates at the Imperial Defence College now occupy posts in which they come into almost daily contact with the other defence Services at the Committee of Imperial Defence, with great practical benefit in co-operation.

The idea so sedulously fostered in some quarters that the defence Services are in a continual state of warfare, and struggling together for limited sums available for defence, has no foundation in fact. Every year the situation as a whole is surveyed in its defence policy aspects by the Chiefs of Staff Sub-Committee (with the aid of material furnished by the Foreign Office and other Departments), while the administration side is surveyed by the Co-ordination Committee, which includes the Permanent Heads of all Government Departments concerned. Those surveys bring to the notice of the Committee of Imperial Defence any new factors in the situation that require examination. These Reports are considered by the Committee of Imperial Defence, who submit them, with their observations, to the Cabinet. The Estimates are then worked out on the basis of the policy finally approved by the Cabinet. The Estimates are co-ordinated by the Chancellor of the Exchequer and the Treasury, in the light of the financial situation and of the approved policy, before they are submitted to Parliament.

Conclusion.—This system is well-suited to the British Constitution. It maintains the authority of the Cabinet and Parliament, and the responsibility of Ministers and their Departments, while it ensures that, both in policy and in detail, their plans and preparations are concerted. It is a progressive system, ensuring that the whole situation is continuously under review, and that all new factors are taken into consideration. It associates Civilian Departments of Government and outside experts with the work of defensive preparation over a very wide field —and the Great War showed how vital are the ancillary services that they have to perform. In addition, this great advisory body is at the disposal of, and made considerable use of by, the Dominions and India, when they so desire. The system provides for the education of a Staff in these higher functions. Above all, it is at the present time achieving one of the essential bases of any defensive system, namely, the proper co-ordination of the activities of all the departments concerned."

THE TASKS OF THE ARMY.

AN OFFICIAL STATEMENT.

On the motion to go into Committee of Supply on the Army Estimates, Mr. Duff Cooper, as Financial Secretary to the War Office and the official representative of that Department in the House of Commons, made a statement of the reasons for which the British Army exists to-day.[1]

As a lucid and authoritative summary of the tasks of the Army and how it is distributed, it is valuable to all students of Imperial Defence. The statement was as follows :—

"The Army exists for four different, separate, and specific purposes. If I enumerate those purposes, I wish to make it plain that they are not counted in order of merit, because they are all equally important. . . . if the Army fails to fulfil any one of the four purposes for which it exists, then the British Empire itself is in danger of collapse.

One of the first purposes which the Army is there to perform is the protection of our naval bases. It is true that the British Empire depends upon sea power, but the Navy itself depends to some extent upon land forces. Ships cannot be at sea all the time. They have to come into harbour. They have to be assured of reception, of fuel, of safety all the time, and the means for refitting and refuelling, and those bases to which they return must be protected from land attack. And so, just as the Empire is held together by the protection which our Navy affords to our trade routes, just as those trade routes are like the invisible steel girders which hold together a great edifice, so those harbours, to which they are obliged to come from time to time, and which are protected by British soldiers, form the joints and the hinges of the vast structure of the British Empire.

Too little is known about this great work which the Army annually performs. Every year the troopships go out unannounced, unostentatiously, without any public manifestation of the vital work which they are carrying on. They stop first at Gibraltar, the gateway of the Mediterranean. Two battalions are left there. They pass on to Malta, in the very centre of that great sea. Again, two more battalions form the garrison. The normal garrison is four, but two battalions are engaged at present in Palestine. They pass on to Egypt and the Sudan, where there are only seven battalions, from whom a small contingent is stationed in the Island of Cyprus, down through the Suez Canal, through the Red Sea, emerging into the Indian Ocean at Aden, which is another vital point, where there is a garrison of some two hundred men. Thousands of miles to the South—in the same Indian Ocean—lies the Island of Mauritius, where there is yet a smaller garrison of British troops. Continuing eastward we come to the sub-Continent of India and the Island of Ceylon—there again there are ports of vital importance—and, further East, to Malaya, where again one battalion only is left, and so on to China, where at Hong Kong and other stations five battalions are distributed between four different stations. There we return and begin the process of coming back, bringing home the soldiers who have been relieved. Even then they have not completed the orbit of the British Empire, for there is yet one more battalion guarding our possessions in the Western Hemisphere at Jamaica and Bermuda. That is one only of the purposes for which the Army exists and is carrying out all the time.

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[1] Official Report Parliamentary Debates, Vol. 287, No. 1, 57; 15th March, 1934.

Another purpose for which the Army exists is the defence of certain frontiers and the maintenance of order in certain territories where we have undertaken a serious obligation. By far the most important of these is India. In comparison with the size of our Army, India occupies an enormous proportion of our forces; but in comparison with the size of the native population and the work they have to do the number of troops there is infinitesimally small. In Egypt and the Sudan there are battalions to protect those countries, and they are responsible also for the protection of the Suez Canal, that vital link between our eastern and our western Empire. In Palestine there are, as I have already said, two battalions. Here I might recall that in 1929 there was disorder in Palestine, riots occurred, and the whole matter was inquired into, and when the report was made to the Permanent Mandates Commission of the League of Nations this country was censured for not maintaining more troops in Palestine than we were maintaining at that time. We probably hold the unique privilege among the nations of the world as being the only country that has ever been blamed by the League of Nations for not maintaining adequate armed forces.

Thirdly, the Army exists to protect this country. There is, obviously, nothing of greater importance than the protection of our own homes, the great reserve of the Empire, the arsenal of the Empire and the centre and heart of it. In addition to the three great purposes which I have already mentioned, we have to provide a force which may be called upon to defend the interests of the Empire outside these shores, perhaps in Imperial territory, perhaps in some foreign land; a force which may be called upon to fight in a country which nobody can foretell and under conditions which nobody can foresee. When we read in the Press and elsewhere criticisms of the British Army they are nearly always based upon a view which regards the Army as existing for one only of these four purposes, not remembering the other three, and the last purpose that I have mentioned is the one that is usually uppermost in the minds of the critics. They nearly always write as though the Army existed only to fight a war with a great civilized Power, of which the first battle would be fought upon Salisbury Plain one day next week."

NAVY NOTES

GREAT BRITAIN.

The Navy Estimates.

The Navy Estimates for 1934–35 were issued on 6th March. The net total is £56,550,000, an increase on 1933–34 of £2,980,000.

Of this increase, £1,426,860 is required for normal progress with new construction; rather more than £1,000,000 of this sum results from the retardation of the 1931 programme, which was not begun until 1933. There is a rise of £201,300 in the non-effective votes, almost wholly automatic; an increase of £249,000 in expenditure on the Fleet Air Arm, for two new flights of aircraft; and a rise of £1,102,840 in the cost of fleet maintenance, due chiefly to provision for large repairs and modernization of certain capital ships in view of the prolongation of their lives by the London Naval Treaty.

The new construction programme for 1934 consists of:—

Four cruisers (three new "Minotaur" type and one "Arethusa");
One leader and eight destroyers;
One aircraft carrier;
Three submarines (one minelayer and two "S" or patrol type);
Two general service sloops;
Two sloop minesweepers;
One netlayer;
Two coastal sloops;
One surveying ship, and small craft.

An increase of 2,038 is provided for in Vote A (numbers), the total being 92,338 as compared with 90,300. This will afford some relief to the drafting situation, and enable better provision to be made for certain essential services.

First Lord's Speech.

The Estimates were introduced in the House of Commons on Monday, 12th March. The following are points from the speech of Sir Bolton Eyres Monsell, the First Lord:—

New Construction.—The total cruiser tonnage we propose to lay down this year is about 32,000 tons, a generous third of what we are allowed for the next three years under the London Treaty, and this building programme is in accordance with the carefully considered Admiralty policy of replacement and of a steady annual programme. By the end of 1936, we shall have the full cruiser tonnage that we can have by that date. In destroyers, we shall be short by over 60,000 tons of the under-age tonnage that we might have under the Treaty; in submarines, about 4,000 tons short.

Salvage of Submarines.—The Admiralty have decided that the raising of a submarine in time to save life by that means is not a feasible operation. The only practical, as well as the most certain, method of saving life is by the Davis

submerged escape apparatus now fitted to all submarines. A salvage organization for submarines only will not be retained.

Personnel.—Steps have been taken to improve the conditions and prospects of men of the lower deck, the cumulative effect of which is not inconsiderable. Recruiting is good; to-day the Admiralty are able to take only one in fourteen of the men who want to join.

Various ships are now working on reduced complements of officers, in addition to the reduction made last year in Lieutenant-Commanders. Promotion from Commander to Captain has been improved, and it is hoped to have a considerably higher proportion of officers promoted from Lieutenant-Commander to Commander.

Royal Navy and Royal Air Force.—The growing tendency to indulge in controversy on the respective merits of the Royal Navy and the Royal Air Force is deplored. Both these Services are vitally necessary for the defence of our Empire. The Fleet depends more and more upon the Naval Air Arm. It is equally true that the Air Force depends on the Navy. At any moment something like 85 per cent. of British ships all over the world carrying our commerce are outside the scope of land-based aircraft.

Battleships.—It is essential for the Navy to have battleships, powerful enough to remain afloat for a reasonable time against any form of attack—gunfire, torpedoes, mines, aerial bombs. It would be technically impossible to incorporate the necessary protection against all these forms of attack in a ship of 10,000 tons. The overriding consideration is that the battleship should be overwhelmingly more powerful than the next type of ship with which it is likely to come into contact. . . . If the capital ship were reduced to 10,000 tons, or if the gap between the capital ship and the cruiser were unduly reduced, all the smaller Naval Powers which at present have not any ships bigger than cruisers would immediately be in a position to upset all the carefully calculated ratios and relative strengths of the other Powers, either by forming combinations among themselves or by reinforcing one of the larger Powers; and it is only our possession of capital ships overwhelmingly more powerful than cruisers that enables us to accept so low a strength as is represented by a one-Power standard.

Summing up a series of carefully reasoned arguments, the First Lord said: "neither technically, strategically, economically, politically, nor even pacifically, could we accept a 10,000-ton capital ship."

H.R.H. Prince George.

Lieutenant H.R.H. Prince George, K.G., G.C.V.O., was promoted to the rank of Commander in H.M. Fleet with seniority of 15th February, 1934.

Flag List Changes.

Admiral Sir Arthur K. Waistell, K.C.B., was placed on the retired list at his own request, to date 11th February, and from the same date Vice-Admiral Sir Roger R. C. Backhouse, K.C.B., C.M.G., was promoted to Admiral, Rear-Admiral W. F. French, C.B., C.M.G., to Vice-Admiral, and Captain K. E. L. Creighton, M.V.O., A.D.C., to Rear-Admiral. Rear-Admiral Creighton was placed on the retired list, 12th February. Captain C. E. Turle, D.S.O., A.D.C., was promoted to Rear-Admiral, 12th February, and placed on the retired list, 13th February. Captain C. F. S. Danby, A.D.C., was promoted to Rear-Admiral, 13th February.

Admiral Henry W. Parker, C.B., C.M.G., was placed on the retired list at his own request, to date 28th February, and in consequence Vice-Admiral Lionel G.

Preston, C.B., was promoted to Admiral, Rear-Admiral Thomas N. James, C.B., M.V.O., to Vice-Admiral, and Captain Lewis G. E. Crabbe, C.I.E., D.S.O., A.D.C., to Rear-Admiral, from the same date. Vice-Admiral T. N. James was placed on the retired list under the provisions of Order in Council of 9th March, 1914, to date 1st March, 1934, and in consequence Rear-Admiral Ragnar M. Colvin, C.B., C.B.E., was promoted to Vice-Admiral, and Captain Charles G. Ramsey, A.D.C., to Rear-Admiral.

Flag Appointments.

America Station.—The King has been pleased to approve the appointment of Vice-Admiral the Hon. Matthew R. Best, C.B., D.S.O., M.V.O., to be Commander-in-Chief, America and West Indies Station, in succession to Vice-Admiral the Hon. Sir Reginald A. R. Plunkett-Ernle-Erle-Drax, K.C.B., D.S.O., to date 11th October, 1934, and to assume command about 19th November.

R.N. College, Greenwich.—Vice-Admiral Ragnar M. Colvin, C.B., C.B.E., is to be President, Royal Naval College, Greenwich, and Vice-Admiral Commanding R.N. War College, in succession to Vice-Admiral Barry E. Domvile, C.B., C.M.G., to date 8th August, 1934.

Battle Cruiser Squadron.—Rear-Admiral Sidney R. Bailey, C.B., C.B.E., D.S.O., is to be Rear-Admiral Commanding the Battle Cruiser Squadron, in succession to Vice-Admiral William M. James, C.B., to date 14th August, 1934.

Assistant Chief, Naval Staff.—Rear-Admiral Charles E. Kennedy-Purvis is to be Assistant Chief of the Naval Staff, in succession to Rear-Admiral S. R. Bailey, to date 15th August, 1934, and to be appointed to the "President" for duty inside the Admiralty, to date 18th July, 1934.

Personnel.

Revision of Pay.—The following is an explanation issued by the Admiralty of the effect of Mr. Chamberlain's Budget proposals on the pay of the Royal Navy and Royal Marines:—

Consequent on the decision of H.M. Government to restore, as from 1st July, 1934, a proportion of the cuts in pay imposed in 1931 on account of the financial situation, their Lordships announce that the following arrangements will be brought into force as from that date:—

Officers.

(*a*) Half the 10 per cent. reduction made as from 1st October, 1931, in the pay of Vice-Admirals and above will be restored.

(*b*) Half the 10 per cent. reduction made as from 1st October, 1931, in the pay of certain officers junior to Lieutenant-Commander who entered the Service before 5th October, 1925, will be restored.

(*c*) The pay of all other officers, which is at present temporarily stabilized at 11 per cent. below the standard rates, will be increased by approximately 1 per cent. to correspond to a cost of living index figure of 52½ pending final consolidation.

(*d*) The pay of Midshipmen and Cadets, which was not reduced in 1931, will remain as at present.

Men.

Half the reduction made as from 1st October, 1931, in the pay of ratings and Royal Marines will be restored. Accordingly rates of pay midway between those introduced in 1931 by A.F.O. 2410/31 and the 1919 rates will be paid to all ratings

and Royal Marines who were entitled to the 1919 scale of pay prior to 1st October, 1931, except those who have left the Service and re-entered on the 1925 scale.

Pensions.

As more than half the reduction in scales of pensions applied in 1931 to men entered before 1st April, 1930, was restored in 1933, the arrangements announced in A.F.O. 643/1933 for C.S. ratings and Royal Marines will remain as at present.

PHYSICAL AND RECREATIONAL TRAINING.—New regulations were issued on 15th February for the Physical and Recreational Training Branch, with the object of giving a larger number of general service officers a knowledge of recreational training, and of so reducing the number of officers employed exclusively in this special work. Their Lordships hope that eventually the majority of ships will carry at least one officer who is conversant with this important subject. The two months preliminary P. & R.T. course has been abolished. In its place a short course of four weeks' duration will be held three times a year during Home Fleet leave periods, to which officers will normally be lent from their appointments. Those who undergo the course will not be required to specialise in P. & R.T., and may volunteer for other specialist branches. Selections to specialise in P. & R.T. will be made from volunteers who have undergone the short course. In place of the former 1/6 a day P. & R.T. specialist allowance, there will be one of 1/- a day for officers who have undergone the short course, and 2/- a day for fully qualified specialists.

NAVAL HISTORY ESSAY.—The subject of the essay for 1934 in the annual examination in Naval History is as follows :—" Discuss fully the problems *either* of naval administration *or* of naval policy arising from the period covered by the three volumes of Barham Papers (N.R.S.)." Essays should not exceed 10,000 words, and references should quote the volume and page. Essays must reach the Admiralty before the end of December, 1934. Copies of " Hints to Competitors " may be obtained from the Adviser on Education, Admiralty.

RONALD MEGAW PRIZE.—The Ronald Megaw Memorial Prize for 1932–33, offered to the Sub-Lieutenant who obtains the highest place in the various examinations for the rank of Lieutenant, has been awarded to Lieutenant R. E. Washbourn, R.N., H.M.S. " Diomede."

GOODENOUGH MEMORIAL PRIZE.—The Goodenough Memorial Prize for the year 1933 has been awarded to Acting Sub-Lieutenant G. W. McKendrick, R.N., H.M.S. " Dryad." This prize is awarded to the Sub-Lieutenant passing the best examination of his year in gunnery, provided he has also taken a first-class certificate in seamanship.

JACKSON-EVERETT PRIZE.—The Jackson-Everett Prize for 1933, offered to the officer passing the best final examinations when specialising in signalling, has been awarded to Lieutenant J. R. B. Longden, R.N., H.M.S. " Hood."

R.M. POLICE FORCE.—The process of substituting Royal Marine Police for Metropolitan Police in the dockyards and other establishments will be completed during 1934 by the transfer of the police duties at Devonport Dockyard.

The appointments of Superintendent and Chief Inspector, R.M. Police, will in future be filled at Admiralty discretion, either by promotion of officers serving in the R.M. Police or by the appointment of officers on the active or retired list of the R.N. or R.M. Officers on the active list will be required to retire on appointment to the R.M. Police. The regulations governing the R.M. Police Force are shown on page 104 of the Appendix to the *Navy List*, December, 1933.

MERCANTILE CADET ENTRIES.—A new scheme whereby Cadets from the mercantile training ships "Conway" and "Worcester" may join the R.N. College, Dartmouth, midway through the course there, at about the age of 15, has been in operation since December, 1933. Three examinations are held each year, in March, July and December. Candidates must be between the ages of 15 years and 15 years 4 months on the 1st April, 1st August and 1st December for entry in the following May, September and January. Those accepted for entry will join up with Cadets in the sixth term at Dartmouth, and will come under the regulations in force for other Cadets at the College. Until June, 1937, Cadets from the "Conway" and "Worcester" can also compete with those from the Nautical College, Pangbourne, for special entry Cadetships in H.M.S. "Frobisher" at about the age of 17, as they have done hitherto.

NEW CONSTRUCTION.

THE 1934 PROGRAMME.—Of the twenty-five vessels in this programme, only in seven cases has any money appropriation been made in the new Estimates, and then only nominal sums. These are :—one cruiser, Devonport, £525 ; one cruiser, Portsmouth, £525 ; one submarine, Chatham, £3,430 ; two sloops, Devonport, £1,040 for the two ; two submarines, by contract, £4,820 for the two.

THE 1933 PROGRAMME.—Orders have been placed for all the vessels of this programme except the two 9,000-ton cruisers "Minotaur" and "Polyphemus," which will be placed about June.

The flotilla leader "Grenville" was ordered at the end of January from Messrs. Yarrow and Co., Ltd., Glasgow.

The eight destroyers are being built as follows :—"Greyhound" and "Griffin" by Vickers-Armstrongs, Ltd., Barrow-in-Furness ; "Garland" and "Gipsy" by the Fairfield Shipbuilding and Engineering Co., Ltd., Govan ; "Gallant" and "Grenade" by Messrs. A. Stephen and Sons, Ltd., Govan ; "Grafton" and "Glowworm" by Messrs. John I. Thornycroft and Co., Ltd., Woolston.

Of the three submarines in this programme, orders were issued on 1st March for the "Grampus" to be begun at Chatham Dockyard. The "Seawolf" was ordered in January from the Scotts' Shipbuilding and Engineering Co., Ltd., Greenock ; and the "Narwhal" in February from Vickers-Armstrongs, Ltd., Barrow-in-Furness.

Of the five sloops in the programme, orders were issued on 1st March for the "Londonderry" to be begun at Devonport Dockyard, and on 8th January for the "Deptford" to be begun at Chatham Dockyard. The order for the "Speedwell," sloop minesweeper, was placed in February with Messrs. W. Hamilton and Co., Ltd., Port Glasgow, with machinery by Messrs. W. Beardmore and Co., Ltd., Dalmuir. The "Bittern," convoy sloop, and "Kingfisher," coastal sloop, had already been ordered from John Brown and Co., Ltd., Clydebank, and the Fairfield Shipbuilding and Engineering Co., Ltd., respectively.

THE 1932 PROGRAMME.—The first vessel of this programme to be launched was the submarine "Clyde," a sister ship of the "Thames" and "Severn," which was put afloat by Vickers-Armstrongs, Ltd., Barrow, on 15th March. The "Salmon," of the improved "Swordfish" class, was launched at the Works of Cammell, Laird and Co., Ltd., Birkenhead, on 16th April. The third submarine of this programme is the "Snapper." Owing to certain changes in design, the construction of the minelaying submarine "Grampus" at Chatham Dockyard, as originally planned under this programme, was deferred, and the "Snapper," of

the improved "Swordfish" class, was substituted for her. The "Snapper" was laid down on 18th September, 1933.

THE 1931 PROGRAMME.—Of the three cruisers in this programme, the "Ajax" was launched by Vickers-Armstrongs, Ltd. Barrow, on 1st March. The "Arethusa," first of a class of smaller 6-in. gun cruisers of about 5,200 tons, was launched at Chatham Dockyard on 6th March. The "Amphion," building at Portsmouth Dockyard, is expected to be launched in July.

The flotilla leader "Exmouth" was named in dock at Portsmouth on 31st January.

The following are the dates of launch of the eight destroyers of the 1931 programme :—"Escapade," 30th January; "Electra," 15th February; "Echo," 16th February; "Esk," 19th March; "Escort" and "Encounter," 29th March; "Eclipse," 4th April; "Express," 29th May.

The dates of launch of the submarines are :—"Severn," 16th January; "Sealion," 16th March; "Shark," May.

THE 1930 PROGRAMME.—The cruiser "Neptune," commissioned at Portsmouth on 22nd February for her acceptance trial, and completed to full crew for service in the Second Cruiser Squadron, Home Fleet, on 24th February. This was the last ship to be completed of those in the 1930 programme.

EXERCISES AND CRUISES.

COMBINED FLEET TRAINING.—On the return of the detachment of the Home Fleet which visited the West Indies, the Home and Mediterranean Fleets engaged in combined exercises in the Atlantic on a full scale for the first time for three years. The exercises began on 10th March and lasted five days. Redland (Mediterranean Fleet) was assumed to inhabit a country in the geographical position of the British Isles. Blueland (Home Fleet), with a main base at St. Miguel, Azores, attempted to seize a potential base in neutral Eastland, whence his raiders could more easily attack the Red trade routes. The strength of the opposing forces was :—

	Red	*Blue*
	Admiral Sir W. W. Fisher	Admiral Sir W. H. D. Boyle
Battleships	5	5
Battle cruisers	—	2
Cruisers, 8-inch	3	—
,, 6-inch	4	7
Aircraft carriers	2	1
Destroyers	27	23
Submarines	5	4
Transports	—	4

The area of the operations was a large one, covering some 500,000 square miles, and was beyond the reach of shore-based aircraft. Unfortunately, the weather conditions were too rough to enable any aircraft to be employed from the carriers. Press reports allege that the Red Fleet was successful in preventing the Blue Fleet from making a descent on Eastland; but the old destroyers which formed the major part of the Blue flotillas were unable to operate in the heavy weather.

ADMIRALTY VISIT.—An Admiralty Board inspection of the combined fleets took place at Gibraltar from 20th to 23rd March. Sir Bolton Eyres Monsell, First Lord, Vice-Admiral Sir Dudley Pound, Second Sea Lord, Vice-Admiral C. J. C. Little, Deputy Chief of the Naval Staff, and Sir Oswyn Murray, Permanent

Secretary, were accompanied during this inspection by Rear-Admiral S. J. Meyrick, Naval Secretary to the First Lord, Major Ronald Ross, M.P., Parliamentary Private Secretary, and Lieutenant-Commander J. H. F. Crombie, Flag Lieutenant to the Board of Admiralty during the visit. Their Lordships travelled from England by mail steamer to Tangier, and were brought to Gibraltar in H.M.S. " Codrington." There they transferred to the sloop " Bryony," in which the Admiralty flag was hoisted. On 21st March, a ceremonial review and march past was carried out by 6,200 of all ranks and ratings, organised as a division under the command of Rear-Admiral H. J. S. Brownrigg. Nearly thirty vessels were inspected by the First Lord. The Admiralty flag was struck on 23rd March in the " Bryony," and the officers returned home to England in the " Nelson " and " Hood." A message of commendation was issued to the fleets before leaving Gibraltar.

Home Fleet.—The summer cruise of the Home Fleet from 9th May to 25th July, will follow the lines of earlier years since the War. A week will be spent at Scapa early in June, after which the squadrons and flotillas will separate for independent visits to coast towns and holiday resorts, and for Northern waters, reassembling at Torbay from July 19th to 24th for the annual sailing regatta.

Mediterranean Fleet.—After the combined exercises the Mediterranean Fleet cruised to coast towns on the Riviera before returning to Malta on 27th April. The " Queen Elizabeth " visited Golfe Juan and Villefranche, and the " Revenge " San Remo and St. Raphael. Leghorn was visited by the " Coventry " and Third Destroyer Flotilla.

China Station.—The conference at Singapore of Admirals from the China, East Indies, Australia and New Zealand Stations concluded on 27th January. Admiral Sir Frederic Dreyer transferred his flag on 31st January from the " Kent," which was ordered home to refit and recommission, to the " Suffolk," and in that ship left on 1st February for Batavia, Sourabaya, Bali, Ende and Port Darwin—the first time for some years that a Commander-in-Chief in China had visited an Australian port. He was there from 24th February to 1st March, and afterwards visited Banda, Kema and Sandakan, where he transferred to the sloop " Falmouth " for a visit to Labuan. Jesselton and Manila were visited during the last fortnight of March, and the two ships returned to Hong Kong on the 31st.

The " Berwick " made a cruise to Japanese ports in April.

America Station.—The " Norfolk," flagship of Vice-Admiral the Hon. R. A. R. Plunkett-Ernle-Erle-Drax, cruised in South American waters from January to March, and visited Bahia, Punta de Este (where a meeting took place with the " Exeter " and " Dauntless," of the South America Division) ; Montevideo, Buenos Aires and Mar del Plata (in company with the " Exeter ") ; and Rio de Janeiro. The " Danae " and " Dragon " cruised to United States ports and in the West Indies.

On parting company from the flagship at Mar del Plata on 20th February, the " Exeter " proceeded to Port Stanley and through the Magellan Straits to cruise up the Pacific coast, calling at Talcahuano, Valparaiso, Iquique and Callao. She was due at Bermuda on 4th May, at the same time as the " York," which made her first cruise on the station from mid-February and visited Rio de Janeiro, Ilha Grande, Ceara, and Para.

East Indies.—The 4th Cruiser Squadron, East Indies, was concentrated at its base at Trincomalee during February and March. The " Hawkins," flagship of Vice-Admiral M. E. Dunbar-Nasmith, will make a cruise in East African waters

from 8th June to the end of September. The " Enterprise " left Colombo on 2nd April for a short East African cruise and to return to Chatham by 8th June for large repairs. The " Colombo " cruised to Aden and Somaliland and to East African ports.

MISCELLANEOUS.

NAVY WEEK PROCEEDS.—The net receipts from the Navy Weeks, 1933, were £12,875 19s. 3d., as compared with £13,827 0s. 1d. in 1932. Over £6,643 was raised at Portsmouth, £3,300 at Chatham, and £2,909 at Plymouth. After donations to dockyard charities and the Police Orphanage, in acknowledgment of assistance rendered, the remainder of the fund was allocated to R.N. and R.M. charities in the proportion of four-fifths to men's charities and one-fifth to officers' charities.

DOMINION NAVIES

ROYAL AUSTRALIAN NAVY

CRUISE.—The " Canberra " and " Australia " were cruising from the end of January to the beginning of April, and visited Jervis Bay, Hobart, Adelaide, Port Phillip and Melbourne.

DESTROYERS IN COMMISSION.—Of the leader and four destroyers of the " W " class lent to the Australian Government to replace the " Anzac " and five older destroyers, which will in due course be scrapped, the leader " Stuart " and the " Voyager " and " Waterhen " were recommissioned for service in Australia on 1st January. The " Vendetta " and " Vampire " paid off into reserve at Sydney on 31st January.

ROYAL CANADIAN NAVY.

DESTROYER CRUISE.—For the first time, the destroyers of the Western Division from Esquimalt, the " Skeena " and " Vancouver," under Commander G. C. Jones, R.C.N., met those of the Eastern Division from Halifax, the " Saguenay " and " Champlain," under Commander L. W. Murray, R.C.N., to cruise in company. The vessels met at Colon on 2nd February, and among the places visited in company were Curacoa, La Guaira, St. Kitts (where a meeting took place with the Home Fleet battleships and cruisers visiting the West Indies), Trinidad, Barbados, St. Lucia, Martinique and Antigua. The Eastern Division was due back at Halifax on 11th May and the Western Division at Esquimalt on 12th May.

ROYAL INDIAN MARINE.

NEW SLOOP.—The new sloop under construction at the Works of Swan, Hunter and Wigham Richardson, Wallsend-on-Tyne, will be known as the " Indus."

CRUISE.—The sloop " Hindustan " left Bombay on 1st February for a month's cruise to Cochin, Colombo, Chittagong, Rangoon and Port Blair.

FOREIGN NAVIES

BRAZIL.

NEW CONSTRUCTION.—Tenders were received and opened on 16th March in Rio de Janeiro for the building of two 8,000-ton cruisers, nine 1,500-ton destroyers, and six 900-ton submarines. A sum of about £6,600,000 was set aside in 1933 for modernizing the Brazilian Navy. The tenders were submitted by six British

firms, five Italian, two each in France, Germany, and Holland, and one each in Brazil, the United States, Finland, and Spain. In reply to a question in the British House of Commons as to whether the submission of tenders by certain German firms was not an infraction of the Treaty of Versailles, it was stated that the Brazilian Government had set aside the tenders submitted by such firms.

NAVY ESTIMATES.—On 26th March, the Brazilian Minister of Marine announced a cut in the Navy Estimates from 340,000 to 250,000 contos of reis. This does not affect the special credits agreed upon for renewing the fleet.

COLOMBIA.

NEW DESTROYERS.—On 9th February, it was reported from Lisbon that the Portuguese destroyers " Tejo " and " Douro," built at Lisbon with the co-operation of the British firm of Yarrow and Co., had been disposed of to the Republic of Colombia, and that new vessels would be built in their place.

The first of these destroyers was renamed the " Antioquia," and during the month of March she was working up at Gibraltar. Retired officers and pensioned ratings of the Royal Navy have been engaged to man this vessel.

ESTONIA.

It is reported that 9,000,000 Estonian kronen have been voted for the purchase of two submarines, three coastal motor boats and twelve bombing aircraft.

FRANCE.

NAVAL ESTIMATES.—The total amount of the naval estimates for the current year is 2,742,084,616 francs, representing an increase of nearly 30,000,000 francs on 1933. This sum, however, includes 50,000,000 francs for the upkeep of the personnel of the Naval Air Service, formerly included in the Air Ministry's estimate.

In the new Naval Construction Bill for 1934 the Minister of Marine will be authorised to lay down before 31st December one capital ship, one flotilla leader, one first-class submarine and one second-class submarine.

SECOND BATTLESHIP.—A second battleship, similar to the " Dunkerque," is due to be laid down at St. Nazaire before the end of the summer; the vessel will be named the " Joffre." The tonnage (26,500) is stated to be the minimum required to carry the necessary guns, to develop the speed required, and to provide armoured protection against heavy shells, torpedoes and aircraft bombs. By building a second ship identical with the first, the maximum of time is gained and the maximum economy effected.

NEW FLOTILLA LEADER.—The flotilla leader " Le Triomphant " was launched at Dunkirk on 16th April. The new vessel belongs to a class of six begun in 1931, with a displacement of 2,569 tons, engines of 74,000 horse-power, 37 knots speed, and an armament of five 5.5-in. guns, four 37-mm. anti-aircraft guns, and three triple 21-in. torpedo tubes.

DEATH OF FAR EAST C.-in-C.—On 17th April, the death occurred of Admiral Descottes-Genon, Commander-in-Chief of the French Naval Forces in the Far East, at Shanghai. During the late War he commanded the torpedo-boat destroyer " Spahi " in the Mediterranean and Adriatic. In the Moroccan campaign of 1926–7 he was wounded during the bombardment of the Bay of Alhucemas. He was Chef de Cabinet to M. Leygues, Minister of Marine, in 1927–28.

SUBMARINE TRIALS.—The submarine "Surcouf," the largest under-water craft in the world, with a displacement of 2,880 tons and an armament of two 8-in. guns and fourteen torpedo tubes, was reported from Brest to have made an experimental dive in March to a depth of over forty fathoms. She had on board at the time a technical commission under Rear-Admiral Devin, Head of the Technical Research Section, Ministry of Marine.

GERMANY.

NEW NAVAL BADGE.—The badge on the uniform caps of naval officers is being altered to a silver Nazi badge with an eagle perched on the swastika.

GREECE.

DESTROYER CONSTRUCTION.—It was announced in Athens early in April that the Greek Government is to have two destroyers, with a displacement of 1,200 tons, built in the naval arsenal.

ITALY.

NO NEW CONSTRUCTION PROGRAMME.—It was stated on authority on 3rd March that in view of the disarmament conversations and as a friendly gesture to other Powers, the Italian Government had decided not to introduce any new programme of naval construction in 1934. This will be the first time for six years that no new ships have been authorised.

LAUNCHES.—The cruiser "Emanuele Filiberto" 7,000 tons, eight 6-in. guns was launched on 22nd April at Leghorn. She represents an advance upon earlier ships of the "Condottieri" class, the displacement having been increased from 5,857 tons. Six torpedo tubes instead of four are being fitted. An aircraft catapult will be placed between the two funnels. Three other cruisers, the "Eugenio di Savoia," "Montecuccoli" and "Muzio Attendolo," are to be launched during 1934.

LONG SUBMARINE CRUISE.—The submarines "Antonio Sciesa" and "Enrico Toti" (1,368 tons—1,874 tons submerged) returned to Spezia on 25th February from a five months' independent cruise around the African Continent, during which they covered 15,000 miles and visited eighteen ports. It was claimed that this was the first time that Africa had been circumnavigated by submarines. The voyage was in continuation of the ocean training policy for submarines inaugurated two years ago with the cruise of the "Ballila" and "Millelire."

JAPAN.

NEW CONSTRUCTION.—The third ship of the "Mogani" class of second-class cruisers authorised by the 1931 programme has been laid down at Yokosuka. The ship is to be named the "Suzuya."

TORPEDO BOAT LOST.—The torpedo boat "Tomozuru," one of a class of four of about 527 tons built to carry the heavy armament of three 5-in. guns and four torpedo tubes—a type not restricted under the London Naval Treaty—capsized off Sasebo on 12th March. The vessel had been engaged in manœuvres. She became separated from her consorts in a thick fog, and was later reported missing. On a search being made she was found floating capsized, and the "Tatsuta" towed her to Sasebo. On the way, rescuers heard signals from inside, and holes were drilled through which air and milk were pumped. The vessel carried 113 officers and men, her ordinary complement having been increased for the exercises. About 100 lives were lost, including all the officers. The 13 survivors were stokers,

seamen and one petty officer, most of whom were in the sleeping quarters astern.

An expert inquiry into all the circumstances of this mishap reported on 5th April that the capsizing was due to the vessel's inability to recover equilibrium when heeling far to port in heavy weather. This lack of stability was ascribed to constructional defects. A further committee has been set up to study means of correcting defects in the design.

NETHERLANDS.

NEW CONSTRUCTION.—The new second-class cruiser building for the East Indies Station, previously known as the "Celebes," is to be called "De Ruyter," and the destroyer previously known as the "De Ruyter" is to be renamed "Van Gendt."

The submarines "K.XV" and "K.XVII" have been formally accepted by the Minister of Marine.

EAST INDIES MUTINY.—The Supreme Military Court at The Hague on 9th March found Captain Eikenboom, formerly in command of the battleship "De Zeven Provincien," guilty of negligence in failing to check the outbreak, and sentenced him to four months' imprisonment and dismissal from the service.

It will be recalled that the mutiny occurred on 5th February, 1933, when the native crew, while the Captain and the majority of the Dutch officers were on shore, seized the ship at Oleleh in Northern Sumatra, imprisoned the remaining officers, and made off down the coast. Six days later they were overtaken by a squadron of flying boats, and after refusing a summons to surrender were attacked. A bomb which struck the ship killed about twenty on board and wounded several others, and the vessel was then given up.

NORWAY.

NEW CONSTRUCTION AND MODERNIZATION.—According to press reports 2,000,000 kronen has been nominated for new construction and modernization of warships for 1934–35. The question of the modernization of coast defence vessels was considered, but it has been decided that the ships are too old to justify such expenditure. The newly built minelayer and training ship "Olar Trygrason" relieves the old coast defence battleship "Tordenskjold" for training duties. It is under consideration to modernize the three destroyers of the "Draug" class.

POLAND.

NEW SHIPBUILDING YARD.—It is reported in the press that it is intended to build a shipyard at Gdynia with a view to making substantial developments in the navy and merchant service, and to avoid the expense of having ships constructed abroad.

SWEDEN.

NEW CONSTRUCTION.—It is understood that a new coast defence ship to replace the "Oskar II" will be laid down shortly. The ship was originally approved in 1927, and money has already been voted for design and preliminary work. She will be a vessel of 7,685 tons, with an armament of four 11-in. and twelve 4.7-in. guns. The speed will be 23 knots with oil fuel. It is estimated that the cost will be about £1,204,000. It is not expected that the ship will be completed before 1937.

UNITED STATES.

NAVAL POLICY.—On 27th March, President Roosevelt signed the Bill sponsored by Mr. Vinson, Chairman of the Naval Affairs Committee, authorising such naval

construction as will bring the American Navy up to the limits fixed by the Treaties of Washington, 1922, and London, 1930.

The new law does not contain any money appropriation, but is simply a declaration that Congress approves the attainment of the full treaty levels of strength. It would, for example, allow Congress to consider the allocation of approximately £150,000,000, spread over seven years, for the construction of the 102 vessels (one aircraft carrier, 65 destroyers, 32 submarines and four cruisers) and 1,184 naval aircraft, which it is calculated the fleet is in need of to bring it up to treaty strength. Among minor provisions of the Act is one that private contractors must agree to return to the Treasury any profit in excess of 10 per cent. of the total contract price.

Fleet Movements.—The U.S. Fleet left the San Diego–San Pedro area on 9th April for the Canal Zone, where fleet exercises were held from 22nd April to 4th May. Altogether about a hundred vessels—11 battleships, 9 heavy cruisers, 8 light cruisers, 45 destroyers, 12 submarines, 3 aircraft-carriers and various other craft—took part in these operations, together with some 300 aircraft and about 47,000 officers and men. After passing through the Canal, the fleet was to engage in a further exercise problem in the Caribbean Sea from 5th to 12th May, to concentrate in the Guantanamo Bay area from the 13th to 25th, and to proceed to New York and other East coast ports in June.

The Battle Fleet had been in the Pacific since May, 1930, and the Scouting Force since March, 1932.

Launches.—The cruiser " Tuscaloosa " was launched at the Camden yard of the New York Shipbuilding Corporation on 14th November, 1933. She is the sixth cruiser to be launched of those authorized in the Act of 13th February, 1929, and should be completed in the summer.

The destroyer " Hull " was launched at Brooklyn Navy Yard on 13th February, and was the first vessel to be launched in a navy yard with champagne since the repeal of Prohibition.

Loss of the " Fulton."—On 13th March, the sloop " Fulton " was destroyed by fire in Bias Bay, where she was on patrol duty for the suppression of piracy in company with H.M.S. " Wishart." Fire broke out in the engine room at 6.35 p.m., while the officers were dining, and within a quarter of an hour the stern of the vessel was isolated from the fore part, and the wireless was out of action. According to an account given by Lieutenant Phelan, of the " Fulton," the s.s. " Tsinan," then a mile distant, sent up rockets, which drew H.M.S. " Wishart " to the scene. Lieutenant Phelan paid a tribute to the great skill of Commander Percy Todd, of the " Wishart " who, despite the heavy swell, brought his ship alongside the bows of the " Fulton " while the crew jumped one by one. Officers and men isolated in the stern jumped on to a raft launched by the " Wishart." Two boatloads were picked up by the " Tsinan," numbering 48, and the " Wishart " rescued 139.

The " Fulton " was of 1,160 tons, armed with two 3-in. A.A. guns, and was completed in 1914. She was propelled by Diesel engines.

Submarine Accidents.—It is interesting to note that the Navy Department has come to a very similar decision on the subject of submarine accidents and rescue work as that recently announced by the First Lord of the Admiralty. In a General Order, issued last autumn, it is stated that tests and experience have shown that raising submarines by pontoons is not a practical means of rescue, and should be considered only as a salvage operation,

ARMY NOTES

HOME

Army Estimates.

Although the Army Estimates for 1934, which have been fixed at a net total of £39,600,000, show an increase of £1,650,000, they are still £330,000 less than the Estimates for 1931.

Last year it was possible to restore to the Territorial Army their annual training in Camp, with marked advantage to both efficiency and recruiting, and to make some progress in overtaking the admitted deficiencies in barrack accommodation and in stocks; there remains, however, much to be done. The additional funds voted this year will be devoted to the modernization of coast and other defences, the continuation of the programme of mechanization, the building up of suitable reserves of stores, the improvement of barracks and particularly the replacement of hutted accommodation erected during the South African and Great Wars, and increased facilities for training.

The role of the British Army as an Imperial police force involves the maintenance of troops in all parts of the world, and the problems to which this wide distribution of troops recruited on a voluntary basis gives rise are not susceptible of any simple solution. (See General Service Notes p. 402.)

The subjoined table gives comparative figures of the Army Estimates since 1930:—

Year	*Effective charges*	*Non-effective charges*	*War terminal charges*	*Total*
	£	£	£	£
1930	32,119,670	8,383,000	*Cr.* 2,670	40,500,000
1931	31,528,350	8,750,000	*Cr.* 348,350	39,930,000
1932	28,172,060	8,306,000	9,940	36,488,000
1933	29,726,000	8,224,000	—	37,950,000
1934	31,418,000	8,182,000	—	39,600,000

Establishment and Distribution.—The total of Vote A is 149,500, as compared with 148,700 last year, the increase being in the main due to the revision of establishments at defended ports.

The distribution of the units of the Army remains generally unchanged. Two battalions of infantry are still retained in Palestine, the normal infantry garrison of Malta remaining correspondingly reduced. Of the six infantry battalions stationed in China, one of which is a regiment of the Indian Army, four are now at Hong Kong, one at Tientsin and one at Shanghai. One field artillery brigade on release from India without replacement towards the end of the financial year will be absorbed into the British establishment at Home.

The principal change in organization in the other arms is the formation of a tank brigade of four battalions from within the existing resources of the Royal Tank Corps.

Owing to the progress in mechanization there has been a continuous decline in the establishment of horses, a reduction of more than 6,000 animals having been effected since 1924.

STRENGTH AND RECRUITING.—The strength of the Regular Army, inclusive of British troops in India, will, on 1st April, be approximately 3,800 below establishment, but the British troops in India will be up to establishment. The number of men leaving the Colours in 1934 will be approximately 1,600 below the anticipated intake of recruits.

In order to bring the Army and its need of support more before the public, especially in those parts of the country where a soldier is rarely seen owing to the fact that the wearing of civilian clothes on leave or furlough is now almost universal, the recruiting services have been reorganized, and a number of new recruiting offices have been opened up in the many populous towns with little or no military connexions. Moreover, all Officers Commanding Infantry Depots have been appointed recruiting officers, and every facility is now given for parents and relatives to visit these depots and see the soldier both at work and at play.

ARMY AND SUPPLEMENTARY RESERVES.—The strength of the Army Reserve at the beginning of the financial year will be about 119,500, falling to about 111,300 by the end of the year.

Recruiting for the Supplementary Reserve during the past year fell a little below expectations; but during the coming year it is hoped that the strength will rise from about 19,800 on 1st April to 21,000.

VOCATIONAL TRAINING AND EDUCATION.—During the year ended 30th September last, 2,340 soldiers received training before leaving the Service, of whom 1,997, or 85.3 per cent., obtained employment; this is a satisfactory improvement on the previous year, when the corresponding figures were 2,203 and 1,706, or 77.4 per cent.

In the three years from 1930 to 1933, 7,040 men have passed through the Army Vocational Centres, of whom 78.8 per cent. are known to have obtained employment.

Lectures by qualified lecturers and visits to Centres by officers and other ranks are spreading throughout the Army a knowledge and appreciation of the nature of the training and the possibilities of employment in civil life.

EDUCATION.—During the past year 10,333 candidates were examined for the special and first-class certificates of education: 56 per cent. of candidates obtained first-class certificates, as against 52 per cent. for 1932. The first-class certificate is now held by 17,615 soldiers and the special by 880. The latter is recognized by various professional bodies as sufficient qualification for admission to the profession, and is also accepted by certain universities in lieu of their matriculation examinations.

HEALTH OF THE ARMY.—The health of the Army during the past year has continued generally satisfactory, although seasonal outbreaks of influenza necessitated the temporary increase of hospital accommodation by 1,407 beds.

The figures for rejection of recruits by medical officers again show a slight increase from 370 to 378 a 1,000, and, in addition, nearly 16,000 men were rejected by the recruiting staff for obvious physical defects without being brought before examining medical officers; but there was a small decrease in the number of men discharged on medical grounds within six months of enlistment.

There are at present 27,000 enrolled and efficient members of Voluntary Aid Detachments, of which number 6,250 have signed a "mobile" obligation. The figures for last year were 26,000 and 6,000 respectively.

DISCIPLINE.—The physical and educational standards of recruits accepted are higher than in past years, with the result that the wastage has never been so low, nor have the general moral and educational standards, the use made of opportunities for self-improvement, and the absence of crime ever been higher.

In this connexion the following statistics are of interest :—

Year	*Average regimental strength*	*Number of Courts-Martial*	*Discharges for misconduct*
1931	180,184	2,195	933
1932	180,866	2,059	951
1933	183,318	1,938	692

TERRITORIAL ARMY.—The strength of the Territorial Army (exclusive of Permanent Staff) on 1st January, 1934, was 7,015 officers and 125,721 other ranks, an increase of 114 officers and 5,554 other ranks in the twelve months. The number of recruits in the year ended September, 1933, was 32,668, as against 14,653 in the previous year, an increase of 18,015. The substantial increase in strength is the natural corollary to the resumption of the Annual Camp training in 1933. The Territorial Army is still, however, much below establishment, and recruits are needed in all arms. It is hoped that there will be a substantial accretion of strength to the Air Defence formations, whose duty it is to co-operate with the Royal Air Force for the protection of London against air attack.

Camps were well attended, 6,159 officers and 111,118 other ranks being present out of a strength of 6,836 officers and 128,805 other ranks.

As a result of the recent reorganization of the Coast Defences, five Heavy Batteries, Royal Artillery, and two Fortress Companies, Royal Engineers, of the Territorial Army were rendered surplus to Coast Defence requirements, and decisions have now been reached to convert them into certain Field Army units of which the Territorial Army is deficient.

TRAINING.—It is proposed to hold manœuvres on a somewhat larger scale than last year in order to counter-balance the effect of confined training areas, to train the Army to operate on wider fronts and at greater distances, and to exercise the higher commanders. The programme is as follows :—

First Phase.—(i) The 1st Division will train on Salisbury Plain, and the 2nd Division at Aldershot. (ii) The 3rd Division and the 2nd Cavalry Brigade will concentrate and train in North Wiltshire. (iii) The 4th Division, the 1st Cavalry Brigade and the 4th Guards' Brigade will concentrate and train in Hertfordshire, Cambridgeshire and Essex. (iv) The 5th Division will train at Catterick and take part in a combined operation with the Royal Navy and the Royal Air Force near Hull.

Second Phase.—There will be manœuvres in North Wiltshire and on Salisbury Plain, in which the following will take part :—The 1st and 3rd Divisions, the 1st and 2nd Cavalry Brigades, the 1st Tank Brigade and a contingent of the Territorial Army.

WORKS SERVICES.—Progress in the replacement of worn-out huts is to be made at Bordon, Blackdown, Deepcut, Longmoor, Bulford, Shorncliffe, Strensall, Crownhill (Plymouth) and Perham Down. Before this programme, which is spread over a period of 15 to 20 years, is completed, the necessity will arise for the

replacement of those huts which have been improved so as to give them some 15 years of further usefulness, e.g., at Catterick, Larkhill, Ballykinlar, Bovington and Lulworth.

Provision is made for further progress in the modernization of the older types of married soldiers' quarters.

ARMAMENTS AND RESEARCH.—One cavalry brigade was equipped last year with light machine guns on a peace scale and a further brigade will be equipped this year.

Trials on a small scale have shown that the 3.7-in. howitzer drawn by a light dragon is likely to prove an efficient substitute for the obsolete 13-pdr. horse-drawn gun with which the Royal Horse Artillery is armed, and extended trials with this equipment are now to be made. Pneumatic tyres will be used for the first time on gun wheels to reduce vibration and damage to the gun when moved at speed.

Trials initiated to investigate the possibility of substituting a 4.5-in. howitzer drawn by a light dragon for the 3.7-in. howitzer will be continued. Such a substitution, in addition to reinforcing the close support afforded by the infantry mortar, would increase the existing fire power of the division.

The light dragon which has been adopted as the standard tractor for mechanized field artillery, has already been issued to two brigades on a peace scale, and two more brigades will be equipped during 1934.

The organization of Divisional Royal Engineers on a mechanized basis has now been settled; some units already possess sufficient vehicles and power tools to enable them to train on a mechanized basis, and the engineer units of another division will be similarly equipped this year.

Small scale trials having indicated the best type of light tractor to replace the horse in infantry first-line transport, more extended trials will be undertaken forthwith. Trials with anti-tank guns are nearing finality, and the equipment of units with the infantry close support 3-in. motor will continue.

Tests are being continued with various types of Diesel engines suitable for use with wheeled vehicles. It is hoped that in due course it may become possible to incorporate this type of engine in armoured fighting vehicles and so to reduce very largely, or even eliminate, the fire risk present in all petrol-driven vehicles.

APPOINTMENTS AND PROMOTIONS.

H.M. the King has approved the following appointments:—Colonel (temporary Brigadier) G. F. H. Brooke, D.S.O., M.C., to be Aide-de-Camp to the King, in succession to Colonel (temporary Brigadier) C. W. Macleod, C.M.G., D.S.O., promoted Major-General; Colonel (temporary Brigadier) H. L. Scott, C.B., D.S.O., M.C., Indian Army, to be Aide-de-Camp to the King, in succession to Colonel G. G. E. Wylly, V.C., C.B., D.S.O., Indian Army, retired; Colonel (temporary Brigadier) L. P. Collins, D.S.O., O.B.E., Indian Army, to be Aide-de-Camp to the King, in succession to Colonel (temporary Brigadier) D. E. Robertson, C.B., D.S.O., Indian Army, promoted.

Colonel J. W. L. Scott, D.S.O., Royal Army Medical Corps, to be Honorary Physician to the King, in succession to Lieutenant-General Sir Harold B. Fawcus, K.C.B., C.M.G., D.S.O., D.C.L., M.B., retired; Colonel E. F. Humphreys, O.B.E., M.C., M.B., Territorial Army, to be Honorary Physician to the King, in succession

to Colonel G. L. Thornton, M.C., Territorial Army (Honorary Colonel, Royal Army Medical Corps, Territorial Army), retired; Colonel A. R. Moodie, T.D., M.D., F.R.C.S. Edin., Territorial Army, to be Honorary Surgeon to the King, in succession to Colonel C. L. Isaac, T.D., M.B., F.R.C.S. Edin., Territorial Army, retired.

Lieutenant-General Sir Walter M. St G. Kirke, K.C.B., C.M.G., D.S.O., General Officer Commanding-in-Chief, Western Command, to be Colonel Commandant, Royal Artillery, in succession to the late Lieutenant-General Sir E. R. Elles, G.C.I.E., K.C.B.; Major-General G. H. A. White, C.B., C.M.G., D.S.O., to be Colonel Commandant, Royal Artillery, in succession to the late General Sir Percy P. de B. Radcliffe, K.C.B., K.C.M.G., D.S.O.

The following appointments have been announced:—

General Sir John T. Burnett-Stuart, K.C.B., K.B.E., C.M.G., D.S.O., to be General Officer Commanding-in-Chief, Southern Command, in succession to the late General Sir Percy P. de B. Radcliffe, K.C.B., K.C.M.G., D.S.O.

Lieutenant-General G. A. Weir, C.B., C.M.G., D.S.O., to be General Officer Commanding British Troops in Egypt, in succession to General Sir John T. Burnett-Stuart, K.C.B., K.B.E., C.M.G., D.S.O.

Major-General W. K. Venning, C.M.G., C.B.E., M.C., to be Director of Movements and Quartering, The War Office, in succession to Major-General E. N. Broadbent, C.B., C.M.G., D.S.O.

Colonel (temporary Brigadier) A. A. Goschen, D.S.O., to be Commandant, Royal Military Academy, Woolwich, in succession to the late Major-General C. M. Wagstaff, C.B., C.M.G., C.I.E., D.S.O.

Major-General B. D. Fisher, C.B., C.M.G., D.S.O., to be Commandant, Royal Military College, Sandhurst, with effect from August, 1934, in succession to Major-General Sir Reginald S. May, K.B.E., C.B., C.M.G., D.S.O.

Major-General R. J. Collins, C.B., C.M.G., D.S.O., to be Commander, Meerut District, Eastern Command, India, with effect from 18th July next, in succession to Major-General C. A. Ker, C.B., C.M.G., C.B.E., D.S.O.

Major-General H. J. Huddleston, C.B., C.M.G., D.S.O., M.C., Colonel, The Dorsetshire Regiment, to be Commander, Presidency and Assam District, Eastern Command, India, in succession to Major-General H. K. Bethell, C.B., C.M.G., C.V.O., D.S.O., with effect from 30th December, 1934.

Major-General K. G. Buchanan, C.B., C.M.G., D.S.O., to be Commander, 42nd (East Lancashire) Division, Territorial Army, in succession to Major-General Sir Hugh J. Elles, K.C.M.G., K.C.V.O., C.B., D.S.O.

Major-General B. B. Crozier, C.M.G., D.S.O., to be Commander, 43rd (Wessex) Division, Territorial Army, with effect from 1st October, 1934, in succession to Major-General R. J. T. Hildyard, C.B., C.M.G., D.S.O.

Major-General R. M. Luckock, C.B., C.M.G., D.S.O., to be Commander, 54th (East Anglian) Division, Territorial Army, with effect from 14th September, 1934, in succession to Major-General F. J. Marshall, C.B., C.M.G., D.S.O.

Colonel (temporary Brigadier) J. M. R. Harrison, D.S.O., to be Major-General, Royal Artillery, Army Headquarters, India, with effect from 16th March, 1935, in succession to Major-General H. W. Newcombe, C.B., C.M.G., D.S.O.

Lieutenant-Colonel N. O. Curtis, D.S.O., M.C., The King's Royal Rifle Corps, to be Officer Commanding, British Troops in Palestine.

Major-General J. A. Hartigan, C.B., C.M.G., D.S.O., M.B., Honorary Physician to the King, Deputy-Director of Medical Services, Aldershot Command, to be Director-General, Army Medical Services, in succession to Lieutenant-General Sir Harold B. Fawcus, K.C.B., C.M.G., D.S.O., D.C.L., M.B., Honorary Physician to the King, retired.

Major-General T. S. Coates, O.B.E., M.B., Deputy-Director of Medical Services, Northern Command, to be Deputy-Director of Medical Services, Aldershot Command, in succession to Major-General J. A. Hartigan, C.B., C.M.G., D.S.O., M.B., Honorary Physician to the King, appointed Director-General, Army Medical Services.

Major-General O. Ievers, D.S.O., M.B., Assistant Director of Medical Services, Salisbury Plain and South Midland Areas, to be Deputy-Director of Medical Services, Southern Command, in succession to Major-General H. C. R. Hime, D.S.O., M.B., Honorary Physician to the King.

Miss D. M. Martin, R.R.C., to be Matron-in-Chief, Queen Alexandra's Imperial Military Nursing Service, in succession to Miss M. E. Medforth, C.B.E., R.R.C., retired.

The following promotions have been made :—Lieutenant-General Sir John T. Burnett-Stuart, K.C.B., K.B.E., C.M.G., D.S.O., to be General ; Major-General Sir Ivo L. B. Vesey, K.B.E., C.B., C.M.G., D.S.O., to be Lieutenant-General ; Colonel H. A. Lewis, C.B.E., and Colonel C. W. Macleod, C.M.G., D.S.O., to be Major-Generals.

Officers' Training Corps, Senior Division.

Appointment of Honorary Colonels.—H.M. the King has approved of the following appointments as Honorary Colonels :—

Oxford University Contingent.—Lieutenant-General H.R.H. The Prince of Wales and Duke of Cornwall, K.G., K.T., K.P., G.C.S.I., G.C.M.G., G.C.I.E., G.C.V.O., Personal Aide-de-Camp to the King.

Cambridge University Contingent.—Captain H.R.H. The Duke of Gloucester, Earl of Ulster, K.G., K.T., G.C.V.O., 10th Hussars, Personal Aide-de-Camp to the King.

Glasgow University Contingent.—Lieutenant-Colonel Sir Iain Colquhoun, Bt. D.S.O., Lord Lieutenant for the County of Dumbarton.

Edinburgh University Contingent.—Honorary Colonel The Marquess of Linlithgow, K.T., G.C.I.E., O.B.E., T.D., Brigadier, King's Body Guard for Scotland.

London University Contingent.—Honorary Major-General the Earl of Athlone, K.G., P.C., G.C.B., G.C.M.G., G.C.V.O., D.S.O., D.C.L., LL.D., Personal Aide-de-Camp to the King (Governor and Constable, Windsor Castle).

Organization and Nomenclature.

New Formation.—H.M. the King has approved the formation, at Gosport, of the 3rd Anti-Aircraft Brigade Headquarters, Royal Artillery, and the 11th Anti-Aircraft Battery, Royal Artillery, for service in Malaya.

The 7th Anti-Aircraft Battery, Royal Artillery, Malaya, to be transferred from the 7th Heavy Brigade, Royal Artillery, to the 3rd Anti-Aircraft Brigade, Royal Artillery.

Royal Engineers, Fortress Companies—Absorption.—H.M. the King has approved of the absorption of the 3rd, 35th, 39th and 49th (Fortress) Companies, Royal Engineers, into the 4th (Fortress) Company, Royal Engineers.

ABBREVIATED TITLE, 15TH/19TH THE KING'S ROYAL HUSSARS.—The title of the 15th/19th The King's Royal Hussars will be "15th/19th Hussars," and the abbreviated title "15th/19th H."

CHANGE IN DESIGNATION.—The designation of Armament Artificers (Range-Finders) R.A.O.C. will be changed to "Armament Artificers (Instruments) R.A.O.C."

BADGES, HONOURS AND DISTINCTIONS.

The following centre badges for Regimental Colours have been approved:—

3rd Carabiniers (Prince of Wales's Dragoon Guards).—Two carbines in saltire surmounted by the Plume of the Prince of Wales. The Rising Sun in the second corner and the Red Dragon in the third corner.

The Devonshire Regiment.—The castle of Exeter with the motto "Semper fidelis."

The Suffolk Regiment.—The Roman numeral XII within a branch of roses and a branch of oak.

The Somerset Light Infantry.—Within a bugle horn stringed ensigned with a mural crown superscribed "Jallalabad" the Roman numeral XIII.

The East Yorkshire Regiment.—The Roman numeral XV ensigned with the White Rose.

The Bedfordshire and Hertfordshire Regiment.—A hart crossing a ford.

The Leicestershire Regiment.—The Royal Tiger superscribed "Hindoostan."

The Duke of Wellington's Regiment.—The Duke of Wellington's crest with the motto "Virtutis fortuna comes."

The Royal Sussex Regiment (with the exception of the 5th (Cinque Ports) Battalion).—The White (Roussillon) Plume surmounted by the Star of the Order of the Garter.

The Oxfordshire and Buckinghamshire Light Infantry.—A bugle horn stringed.

The Essex Regiment.—An eagle.

The Sherwood Foresters.—A Maltese Cross charged in the centre with a stag lodged on water within a wreath of oak.

The Northamptonshire Regiment.—A sprig of three maple leaves each charged with a fleur-de-lys.

The King's Own Yorkshire Light Infantry.—Within a French hunting horn a pomme; thereon the White Rose.

The Wiltshire Regiment.—A cross patee charged in the centre with a roundle; thereon the cypher and coronet of the late Duke of Edinburgh.

The Highland Light Infantry.—Within a French hunting horn the monogram "H.L.I."

The Seaforth Highlanders.—A stag's head caboshed, between the antlers the cypher and coronet of the late Duke of Albany, with the motto "Cuidich'n Righ."

The Gordon Highlanders.—The crest of the Marquis of Huntly within a wreath of ivy, with the motto "Bydand."

The Argyll and Sutherland Highlanders.—The Princess Louise's cypher and coronet.

THE GENERAL SERVICE MEDAL WITH CLASP "NORTHERN KURDISTAN."—H.M. the King has approved of the General Service Medal (having on the obverse His Majesty's new Crowned Effigy) with clasp "Northern Kurdistan" being granted to personnel of the Royal Air Force and other Imperial Forces and to British military personnel serving with the Iraqi Forces who participated in the operations against Shaikh Ahmed of Barzan, in Northern Kurdistan, between

15th March and 21st June, 1932, both dates inclusive, and within the area defined as Diana–Erbil–Aqra–Suri (junction of Shemsdinan and Greater Zab Rivers)—due North to Turkish Frontier—along Turkish Frontier to a point due North of Diana–Diana, all places inclusive.

ROYAL TANK CORPS.

The 1st Tank Brigade will be formed and trained as a brigade in the Salisbury Plain area. It will be composed of the Tank units in the Aldershot, Eastern and Southern Commands, which will be formed into three mixed tank battalions and one light tank battalion. Training will proceed on the lines developed during 1931 and 1932, with particular attention to the action of armoured formations where the support of other arms is not immediately available.

The 4th Battalion, Royal Tank Corps, will continue its training in co-operation with other arms under the direction of the General Officer Commanding-in-Chief, Northern Command.

TERRITORIAL ARMY.

CHANGES IN ORGANIZATION AND DESIGNATION.—H.M. the King has approved of changes in the organization and designation of the undermentioned units of the Territorial Army as follows :—

Royal Artillery.

150th (Tynemouth) Heavy Battery to be 150th (Tynemouth) Medium Battery (How.).

160th (Forth) Heavy Battery to be 160th (Forth) Medium Battery.

172nd (Clyde) Heavy Battery to be 172nd (Clyde) Medium Battery (How.).

173rd Heavy Battery to be 173rd (North Scottish) Medium Battery (How.).

174th Heavy Battery to be 174th (North Scottish) Medium Battery (How.).

These four batteries to be the 62nd (North Scottish) Medium Brigade.

Royal Engineers.

City of Aberdeen Fortress Engineers to be 319th (City of Aberdeen) Anti-Aircraft Searchlight Company.

City of Dundee Fortress Engineers to be 320th (City of Dundee) Anti-Aircraft Searchlight Company.

Royal Corps of Signals.

223rd Field Artillery Signal Section to be 3rd Survey Section, Royal Artillery.

DOMINION FORCES.

REGIMENTAL ALLIANCES.

H.M. the King has approved of The South Alberta Regiment, Non-Permanent Active Militia of Canada, being allied to The East Surrey Regiment.

FOREIGN

BELGIUM.

CHANGES IN ARMAMENT AND EQUIPMENT.—(*a*) The two groups of mechanized artillery belonging to the Cavalry Corps, one of which is at present carried in lorries while the other is drawn by Fordson tractors, are both in process of being re-equipped with Latil tractors.

(*b*) The six Carden Loyd tractors purchased three years ago from Messrs. Vickers are being equipped with 47-mm. anti-tank guns, and when completed will be issued to the *Chasseurs Ardennais* as part of their mechanized equipment.

(*c*) Trials are still proceeding with a new 120-mm. medium artillery gun, and it is hoped that one group of Corps Artillery will be equipped with this weapon by the end of 1934. It will be tractor-drawn by Minerva-Kegresse tractors, which are being built in Belgium.

(*d*) Machine-gun units of all arms are being equipped with a simplified form of anti-aircraft sight, closely resembling the French Casaux-Labat type, but produced locally. All guns are also being provided with alternative anti-aircraft mountings.

(*e*) All rifles are in process of conversion to enable them to fire the Model 30 cartridge, which has hitherto only been used in light automatics and machine guns.

Formation of Volunteer Cyclist Units.—In order to provide the necessary officers and N.C.Os. for new frontier defence units, the Minister of Defence has called for volunteers from the army.

These units are to be formed at Beverloo Camp, where they will undergo five months' preliminary training from 1st March until 31st July. They will be organized eventually in five battalions with headquarters at Maeseyck, Verviers, Vielsalm, Bastogne and Arlon respectively (with one autonomous company at Malmédy) and sub-divided into eighteen companies, which will be distributed in eleven different garrisons along the entire Belgian frontier.

FRANCE.

Conseil Superieur de la Guerre for 1934.—A decree dated 3rd February, 1934, lays down the composition of the *Conseil Supérieur de la Guerre* for 1934 as under:—Marshals of France: Pétain; Lyautey; Franchet d'Esperey.

Generals—	*Present Appointment.*
Debeney	Until 5th May, 1934.
Gouraud	(Military Governor of Paris).
Weygand	(Vice-President of the *Conseil Supérieur de la Guerre* and Inspector-General of the Army).
Claudel	(Inspector-General of Colonial Troops).
Walch	(Military Governor of Strasbourg).
Hergault	Until 5th September, 1934.
Gamelin	(Chief of the General Staff).
Dufieux	(Inspector-General of Infantry).
Mittelhausser ..	(No other appointment).
Belhague	(Inspector-General of Engineers).
Carence	(Inspector-General of Artillery).
Duchêne	(Assistant Inspector-General of National Air Defence).
Georges	(No other appointment).
Billotte	(No other appointment).

General Maurin, who was also a member, was transferred to the Reserve on 5th January. The Council thus now consists of 17 members instead of 18.

Appointment to the Council automatically involves the designation of Generals to the highest war commands and staff appointments.

The age limits for retirement of *Généraux de Division* are as follows:—

(*a*) The Vice-President of the Council .. .. .. 68 years.
(which age General Weygand will attain on 21st January, 1935).

(*b*) Members of the Council .. .. 65 years.
(*c*) Regional Commanders .. .. 64 years.
(*d*) *Généraux de Division* other than above .. .. 62 years.
(*e*) Two members (Generals Gouraud and Debeney) have been specially permitted to remain till attaining the age of 70.

INSPECTOR-GENERAL OF NATIONAL AIR DEFENCE.—General J. C. D. Duchêne, Member of the *Conseil Supérieur de la Guerre*, Assistant Inspector-General of National Air Defence, has been appointed Inspector-General of National Air Defence in succession to Marshal Pétain, recently appointed Minister for War.

ITALY.

FORMATION OF A MILITARY ALPINE SCHOOL.—A Military Alpine School (*Scuola Militare Alpina*) has been opened at Aosta. The object of the School is defined as "the promotion, by means of technical and practical courses of instruction, of Italian Military Alpinism and mountain climbing, and the spread of this culture amongst officers and non-commissioned officers."

The School has a fine library of books on alpine matters generally, and a gymnasium where exercises suitable to mountaineering training are studied and practised.

UNITED STATES.

SUBSTITUTION OF MOTOR FOR HORSE TRANSPORT IN THE U.S. ARMY.—The extensive use of motor vehicles in the U.S. Army has been held up owing to lack of funds to purchase up-to-date vehicles. The Army has hitherto had to rely largely upon worn-out lorries purchased during the Great War and has, therefore, retained much of its horse transport. Now, under the Government scheme for increasing employment by large expenditures of public money, the Public Works Administration has allotted to the Army 10 million dollars (£2 million) for the purchase of mechanical vehicles. The Army is taking advantage of this windfall to press on with "motorization," a term which means the substitution of mechanical vehicles other than armoured fighting vehicles for horse transport; the provision of armoured fighting vehicles being termed "mechanization."

7,776 motor vehicles of all types are to be purchased, of which 1,551 are to be allotted to the Field Artillery of the National Guard, or State Militia, the remaining 6,225 being distributed among the different arms and services of the Regular Army as follows:—

Infantry	1,484
Field Artillery	1,811
Cavalry	438
Coast Artillery	731
Air Corps	880
Corps of Engineers	335
Signal Corps	147
Chemical Warfare Service	97
Medical Department	139
Quartermaster Corps	67
Ordnance Department	96
Total	6,225

In addition, 612 sets of adapters for 75-mm. gun carriages are to be purchased. These provide for the fitting of pneumatic tyres to the gun wheels so that the guns may be towed at high speed.

This list shows that motorization is to be widespread throughout the army, some of the more important projects being the following :—

Cavalry.—The headquarters of the 1st Cavalry Division, with its two active cavalry brigades, and the headquarters of all active cavalry regiments in the United States and Philippine Islands are to be motorized ; in addition, scout cars are to be provided for all active cavalry regiments.

The unarmoured vehicles required by the 1st Cavalry Regiment (already mechanized) are to be provided. This should help on the work of this regiment, which has been held up owing to the lack of suitable modern equipment.

Field Artillery.—Mechanical tractive power and gun carriages modified for high-speed traction are to be provided for all the 75-mm. batteries in Hawaii and the Philippine Islands, and for approximately half the 75-mm. batteries in the United States, probably 39 batteries in all ; also for a battalion of 75-mm. guns to work with the mechanized cavalry brigade. All medium and heavy field artillery units are to be provided with mechanical tractive power.

Reconnaissance vehicles are to be provided for all units.

Infantry.—Extensive motorization is to be carried out in the infantry, especially in the headquarters of all formations down to regiments ; the machine-gun and howitzer units of the 1st Division, the 30th and 38th Regiments, and the 2nd Battalion of the 29th Regiment are to be motorized.

The army has already placed contracts for a number of the vehicles required, and will press on with the scheme with all speed with the double object of completing the motorization programme early and of accelerating the government employment scheme.

Annual Report of the Chief of Staff of the U.S. Army, 1933.—The Annual Report of the Chief of Staff of the U.S. Army, General Douglas MacArthur, submitted to the Secretary of War, emphasizes the great social and economic changes which have been initiated in the United States during the past year, which have affected the army in many ways. A considerable amount of attention is devoted to the activities of the army in organizing and running the Civilian Conservation Corps for the employment of 300,000 unemployed youths in forest camps throughout the United States. The Chief of Staff takes a natural pride in the efficiency with which the army has carried out a difficult task, and compares the ease with which the recruits for the Civilian Conservation Corps were handled in 1933, at one time at the average rate of 8,500 per day, with the excessive cost, confusion, delay and inefficiency which attended America's mobilization in 1917. He acknowledges the value to the army of the Civilian Conservation Corps as a practice for mobilization, but at the same time he points out that all the normal activities of the army had to be set aside in order to carry out this special task, all army schools had to be closed down, many units were denuded of officers, and many training activities suspended, especially in connection with the National Guard and the Reserves. Naturally, this state of affairs could not be allowed to continue, and orders have since been issued for the return of all regular officers to normal duty, their places with the Civilian Conservation Corps being taken by reserve officers.

The exceptional economic situation in the United States led to reductions in the military budget. The Chief of Staff describes the heavy cuts in the appropriations proposed by the Director of the Budget and the efforts of the War Department to resist the cuts.

Eventually the following figures were authorized :—

War Department Budget for 1933-34—	*million dollars*
Military activities	225
Supplementary Budget	4
Total	229

After the passage of the Budget, however, the Government introduced the policy of large expenditures on public works as a method of producing employment, and from this source the following sums were made available for military purposes :—

	million dollars
For building and repairing barracks	56.0
Searchlights	2.0
Coast defences	7.0
Aircraft	7.5
Ammunition	6.0
Purchase of motor transport	10.0
National Guard buildings	2.3
Total	90.8

Future trends in the organization, training and equipment of the army are dealt with at considerable length. The general tendency is towards greater mobility and increased fire power, but, owing to various factors, including expense, it is impossible to keep a sufficient supply of up-to-date vehicles and weapons available for war. The policy of the United States is to carry out research and experiment, and produce only sufficient models to enable tests to be carried out and to maintain a few units satisfactorily equipped for emergency use, and, on the outbreak of war, to initiate manufacture of the most modern types.

In the infantry semi-automatic shoulder weapons and very light machine guns will eventually replace the present armament. With the increased fire power given by these weapons it may prove possible to reduce the war establishment of units. A more definite re-alignment of infantry formations into light and heavy elements, corresponding to the weight of unit armament and tactical functions, may possibly be indicated.

Increased use of motors will give greater infantry mobility on the march, and on the battlefield, tanks will help them to pass through the band of enemy fire.

The cavalry must also study mechanization. At present this study is being carried out on two lines. The 1st Cavalry at Fort Knox has been totally mechanized and the horse eliminated. It is intended to form a mechanized brigade. On the other hand, experiments are being made with cavalry regiments fully equipped with motor transport and having allotted to them light scout cars and possibly a few fighting vehicles, the horse being used only to carry the cavalry combat soldiers and weapons normally supplied to cavalry formations.

In the artillery great advances have been made in fire power and mobility since the War. With the indications that the tactical and strategical mobility of the infantry are likely to increase, there arises a need for greater mobility for

all field artillery weapons. Within recent years an artillery carriage, fitted with pneumatic tyres, has been developed which enables field guns to be towed at high speeds without damage to their mechanism. In combination with this important invention improved tractors and lorries will soon enable all field artillery to be equipped with motor transport.

The Air Corps has continued to improve its equipment. Approximately one-fifth of the Army Budget is expended directly or indirectly on this corps, which shows the importance attached to it.

The Chief of Staff deduces from the modern tendency towards mechanization that any major war of the future will see a swing away from the ponderous fighting forces engaged in wars of the past 75 years towards mobile, highly trained and very powerful, though somewhat smaller, formations.

Under the heading " Factors affecting morale " the Chief of Staff deals with questions of promotion and pay, both of which subjects are causing the War Department anxiety. The United States Army has a different system of promotion from the British Army; all officers below the rank of Colonel, except officers of the Medical Corps and Chaplains, being on a single promotion list, on which promotion is carried out strictly by seniority. Owing to the large number of officers brought into the regular army as captains and lieutenants immediately after the War, 5,000 within two years, a very serious block in promotion exists. This is known as the " hump," and owing to its existence a large number of officers will still be captains when their seniors with very little more service are colonels. The War Department has prepared a scheme to deal with this abnormal promotion situation, and the Chief of Staff urges its adoption by Congress.

The pay of officers and other ranks in the United States Army was reduced last year by 15 per cent. on account of the economic situation. The Chief of Staff urges the restoration of this cut in view of the increase in the cost of living. However, he says that the reduction has been loyally accepted by the army, but there are other economy measures which have acted unfairly and have caused considerable resentment. The factor of length of service plays an important part in officers' pay, increases of pay being granted at certain fixed intervals. Under an act of Congress, known as the " Pay freeze," all automatic increases of pay were stopped with effect from last year. Such an order obviously works most unfairly, affecting some officers much more than others. The Chief of Staff, therefore, urges very strongly that it should be discontinued.

As regards the men, the 15 per cent. cut falls heavily on the lowest ranks, and many of the men whose pay has been reduced to $17.85 a month are employed as cooks, clerks or orderlies in the Civilian Conservation Corps Camps, where the unemployed youths who join the camps without any qualifications or any obligation to serve for a long period receive $30 a month. The bad effect on discipline and morale is inevitable.

In his " conclusions " at the end of the report the Chief of Staff says: " In the obvious state of unrest now prevailing throughout the world, evidences of which are plainly visible even in our own country, an efficient and dependable military establishment, constantly responsive to the will of its Government, constitutes a rock of stability and one of a nation's priceless possessions. As much as at any time in our history, the Army's efficiency should engage the earnest attention of every loyal citizen. It is my conviction that at this moment the Army's strength in personnel and material and its readiness for employment are below the danger line. I consider it of the most urgent importance to the United States that this condition be obviated without delay."

AIR NOTES

ROYAL AIR FORCE.

Air Estimates.

When introducing the Air Estimates for 1934 in the House of Commons on 8th March, Sir Philip Sassoon, Under-Secretary of State for Air, remarked that there were two diametrically opposed schools of thought who differed with earnestness and vigour on the subject of the fighting Services in general and the Royal Air Force in particular. On the one hand, there were those who regard the Air arm as a direct and imminent threat to the survival of our present-day civilization, and would like to see all military aircraft swept out of existence; on the other, were those who consider that the air defence of these islands is utterly inadequate, and would like to see a large and immediate increase in the number of our Service machines. He hoped to persuade the body of moderate opinion that the Government is taking a reasonable and proper course in circumstances of peculiar difficulty and delicacy.

The Estimates disclosed, for the first time after the sacrifices of recent years, a modest upward trend. The net figure of £17,561,000 showed an increase of £135,000 only. A truer picture was provided this year by a comparison of the gross Estimates. These at £20,165,000 showed an increase of £527,000. The explanation was twofold. As a result of the deliberations of the recently appointed Tribunal on Indian Defence Expenditure, we were getting an extra £100,000 from India in respect of the initial training, etc., in this country of Royal Air Force personnel serving on the Indian establishment. Secondly, the bulk of expenditure on the Fleet Air Arm was borne under the current arrangements by Navy Votes and did not appear in our net total, but only in the gross figures as a grant in aid.

For this moderate increase in expenditure, the country was going to get four new squadrons; two for home defence, one flying boat squadron, and the equivalent of one squadron for the Fleet Air Arm. In addition, two Home Defence squadrons, now forming part of one of our experimental establishments, would be reconstituted and given separate entity. Thus, though the nominal increase in our first-line strength would be four squadrons, we should in fact be getting an effective increase of six squadrons. . . . .

The world had reached a critical point of extreme delicacy in the matter of disarmament. Last year he had expressed the hope that the Disarmament Conference would come to a satisfactory agreement for the limitation and reduction of air armaments. That had not yet been done. . . . Throughout all the discussions which had taken place upon the subject, we had been foremost in advocating general disarmament in the air to the lowest level on which international agreement could be secured. We had put forward definite proposals to that end. . . . Far from accepting our proposals, farther yet from following our example, other nations had steadily increased the strength of their respective air arms until they far outnumber our own.

Other Air Powers.—The latest developments were still more striking. The President of the United States had recently sanctioned an additional expenditure

of some £3,000,000 on new aircraft for the American naval and military air services. Russia and Japan were also largely expanding their air forces. The intentions of Russia were indicated by a Red Army Order of 18th August, 1933, signed by the War Minister, Voroshilov. It was as follows: "Technically equipped, confident of its force, stands the Red air fleet at the gates of its future, intently and energetically working on the completion of its historical task—to overtake and surpass the capitalist countries most advanced in aviation." Increased funds for air armament had been provided by a long list of other countries, including Italy, Belgium, Switzerland, and Czecho-Slovakia; while of our own Dominions, Australia, South Africa, and New Zealand had authorised a considerable increase in their air expenditure for the coming year.

In these circumstances His Majesty's Government felt that it was impossible for this country to continue to hold in abeyance the ten-year-old programme of 1923, now so long overdue for completion. We could not afford to accept a position of continuing inferiority. We had made it plain that this country must, so long as air forces exist, have parity in the air, howsoever that parity be attained.

New Air Base in Iraq.—In explaining an increase of £65,000 in the Vote for works and buildings, the Under-Secretary explained that it was primarily due to provision for the further development of the new air base at Dhibban in Iraq. He explained that Article 5 of the Treaty of Alliance between the United Kingdom and Iraq, of 30th June, 1930, specifically provided for the construction of "an air base to be selected by His Britannic Majesty to the West of the Euphrates." There were considerable advantages, from the point of view of the Royal Air Force, in the transfer from the present air base at Hinaidi. The site at Dhibban, too isolated according to some, was, after all, only fifty miles from Baghdad—half-an-hour that is by air and two hours by road. It was selected after the most exhaustive consideration of all possible alternatives. Strategically it was definitely preferable to Hinaidi. It had an easy line of communication running Westwards to Transjordan and Palestine through desert country, readily negotiated by modern motor transport and inhabited but sparsely by friendly tribes. This line of communication was considered to be materially safer than the corresponding line between Baghdad and Basra, which passed through areas closely inhabited by powerful tribes who had been active insurgents in past disturbances in Iraq. Moreover, Dhibban lay West of the rivers which would have to be crossed by hostile tribesmen coming from most quarters of Iraq, and the bridgeheads of which we could control. Dhibban was much healthier than Hinaidi, and afforded ample space for the provision of recreational facilities.

Bombing from the Air.—After quoting examples of the advantages of air power in preserving peace on the Empire's frontier, Sir Philip said that it was instances like these which had led His Majesty's Government to insist that police bombing in outlying districts should be excepted from any general prohibition of bombing from the air. But the dropping of bombs was only the final stage of police action, and in most cases peace was restored without resort to force at all. Thus in one instance we had found an address from the air by loud speakers singularly effective. If this failed, the offenders were given another chance, and we first dropped *dummy* bombs as a warning. It was only after all these preliminary stages had failed to produce the desired result—which was seldom—that recourse was had to actual bombing. In the light of experience, it was unthinkable that we should deliberately and of choice go back to the old methods. To do so could only mean once again an immense sacrifice of life on both sides—on our own no less than the

enemy's. Humanity itself demanded that, when the new instrument had proved its mercifulness and efficiency over a ten-year period, we should not wantonly abandon it.

Improvements in Material.—Since February, 1933, one of our squadrons had been operating upon petrol produced from British coal by the low-temperature carbonisation process. The results had been so satisfactory that it had been decided to accept coal-petrol as a normal supply. It was expected that sufficient British produced fuel would be available in the coming year for the use of seven squadrons. Experiments had been made and were continuing in connection with compression ignition engines, running on heavy oil. As regards petrol engines, one of the more interesting developments of the year was an air-cooled engine which operated with sleeve-valves, instead of poppet valves. Constant experiments, in which our new and reconstructed wind tunnels are proving of the greatest service, had been conducted also in machine design with a view to increasing performance and the safety factor.

Appointments.

Honorary Physician to the King.—Air Commodore A. W. Iredell, M.R.C.S., L.R.C.P., is appointed an Honorary Physician to the King, vice Air Commodore H. V. Wells, C.B.E., M.R.C.S., L.R.C.P., who has vacated the appointment on retirement from the Royal Air Force, to date 14th February, 1934.

Air Vice-Marshals.—W. R. Freeman, C.B., D.S.O., M.C., to Royal Air Force Staff College, as Commandant, to date 2nd January, 1934; P. B. Joubert de la Ferté, C.M.G., D.S.O., to Headquarters, Fighting Area, as Air Officer Commanding, to date 2nd January, 1934; P. H. L. Playfair, C.B., M.C., to Headquarters, Western Area, on promotion to the rank of Air Vice-Marshal, to date 1st January, 1934.

Air Commodores.—J. T. Babington, D.S.O., to Air Ministry, Department of the Chief of the Air Staff, on promotion to the rank of Air Commodore, to date 1st January, 1934; J. E. A. Baldwin, D.S.O., O.B.E., to No. 1 Air Defence Group Headquarters, on appointment as Air Officer Commanding, to date 6th February, 1934; C. L. Courtney, C.B., C.B.E., D.S.O., is appointed Director of Staff Duties, Air Ministry, to date 3rd April, 1934; L. A. Pattinson, D.S.O., M.C., D.F.C., to Armament Group, on appointment as Air Officer Commanding, to date 1st February, 1934; A. V. J. Richardson, O.B.E., M.B., B.Ch., D.P.H., to Headquarters, Air Defence of Great Britain, on appointment as Principal Medical Officer, to date 30th January, 1934; W. L. Welsh, D.S.C., A.F.C., on promotion to the rank of Air Commodore, appointed Director of Organization and Staff Duties, to date 15th January, 1934.

Group Captains.—J. S. T. Bradley, O.B.E., to Imperial Defence College, to date 16th January, 1934; D. C. S. Evill, D.S.C., A.F.C., to Air Ministry, Department of Chief of the Air Staff, on appointment as Deputy-Director of Staff Duties, to date 1st January, 1934; A. G. R. Garrod, O.B.E., M.C., D.F.C., to Air Ministry, Department of Chief of the Air Staff, on appointment as Deputy-Director of Organization, to date 15th January, 1934; A. H. Jackson, to R.A.F. Depot, Uxbridge, in command, to date 19th March, 1934; T. L. Leigh-Mallory, D.S.O., to Imperial Defence College, to date 16th January, 1934; R. H. Peck, O.B.E., to Air Ministry, Department of the Chief of the Air Staff, on appointment as Deputy-

Director of Operations and Intelligence, to date 13th January, 1934; B. A. Playne, D.S.O., to Headquarters, Royal Air Force, Halton, on appointment as Principal Medical Officer, to date 15th March, 1934; J. C. Quinnell, D.F.C., to Headquarters, Western Area, on appointment as Senior Air Staff Officer, to date 16th January, 1934; H. L. Reilly, D.S.O., to Reception Depot, in command, to date 15th February, 1934; J. R. W. Smyth-Pigott, D.S.O., is seconded for service with the Peruvian Government, to date 15th March, 1934; A. W. Tedder is appointed Director of Training, Air Ministry, to date 4th April, 1934.

Personnel.

Operations in Iraq, 1932.—Grant of General Service Medal.—His Majesty the King has been graciously pleased to approve of the General Service Medal with Clasp "Northern Kurdistan" being granted to personnel of the Royal Air Force who participated in the operations against Shaikh Ahmed of Barzan in Northern Kurdistan. Individuals previously awarded the medal will receive the clasp only.

Royal Air Force personnel serving within the undermentioned area between 15th March and 21st June, 1932 (both dates inclusive) are, provided their claims are approved by the Air Council, entitled to the medal and/or clasp:—

> Diana–Erbil–Aqra–Suri (junction of Shemedinan and Greater Zab Rivers)—due North to Turkish Frontier—along Turkish Frontier to a point due North of Diana-Diana (all places inclusive).

Officers who are no longer serving in the Royal Air Force may obtain a copy of the form of application from the Secretary, Air Ministry, Adastral House, Kingsway, London, W.C.2, and airmen no longer serving in the Royal Air Force from the Officer-in-Charge of Records, Royal Air Force, Ruislip, Middlesex. When completed, forms should be sent to the Secretary, Air Ministry.

Zone of Promotion to Wing Commander.—An Air Ministry Order (No. A 1 d/d 4/1/34) announces that the upper limit of the zone of promotion to Wing Commander in the General Duties Branch will be reduced to seven years' seniority as Squadron Leaders, with effect from the promotions to be made on 1st January, 1935. Squadron Leaders of July, 1926, seniority and Squadron Leaders of 1927 seniorities will, therefore, be finally considered for promotion on 1st July, 1934.

Material.

Nomenclature of Aircraft.

Hardy.—The official name of the Hawker (General Purpose) aircraft is Hardy.

Gordon II.—The official name of the Gordon now under construction is the Gordon II. This aircraft is similar to the Gordon I. except that it is fitted with a modified rear fuselage and frise ailerons. A new tail unit has also been added to harmonise controls.

Nimrod II.—The official name of the Nimrod now under construction, with swept-back wings and larger tailplane, is Nimrod II.

Vildebeest III.—The official name of the Vildebeest aeroplane now under construction, with an altered rear cockpit and gun mounting and a third seat behind the pilot, is Vildebeest III.

RE-EQUIPMENT OF UNITS.—The following re-equipment of Units has recently taken place :—

Unit	*Details*
No. 16 (A.C.) Squadron	Audax replaced Atlas A.C.
No. 99 (B) Squadron	Heyford replaced Hinaidi.
No. 209 (F.B.) Squadron	Perth replaced Iris.
No. 503 (B) Squadron	Hinaidi replaced Hyderabad.
No. 504 (B) Squadron	Wallace replaced Horsley.
No. 602 (B) Squadron	Hart replaced Wapiti.
No. 603 (B) Squadron	Hart replaced Wapiti.
No. 812 (B) Squadron	Baffin replaced Ripon.
Air Armament School	4 Hart replaced 4 Wapiti.
No. 5 F.T. School	Bulldog " T " replaced Siskin " T."
No. 5 F.T. School	Tutor replaced 504N.
School of Army Co-operation	Audax replaced Atlas A.C.
R.A.F. College, Cranwell	Bulldog " T " replaced Siskin " T."
R.A.F. College, Cranwell	Bulldog IIA. replaced Siskin IIIA.
Air Pilotage School Andover	Cloud replaced Victoria.
Anti-Aircraft Co-operation Flight	Wallace replaced Horsley.

Part replacement has recently been completed in the case of the following unit :—

No. 810 Squadron	6 Ripon replaced Dart.

The following Units will probably complete part replacement during the next few months :—

No. 24 Squadron	4 Hart in place of IIIF. G.P.
No. 810 Squadron	6 Baffin in place of Dart.

The following Units are expected to complete or commence re-equipment or partial re-equipment during the next few months :—

No. 8 Squadron	Vincent to replace	IIIF. G.P.
,, 24 ,,	Osprey ,,	IIIF. G.P.
,, 30 ,,	Hardy ,,	Wapiti.
,, 41 ,,	Demon ,,	Bulldog.
,, 84 ,,	Vincent ,,	Wapiti.
,, 801 ,,	Osprey ,,	Flycatcher.
,, 810 ,,	Baffin ,,	Dart.
,, 403 Flight	Osprey ,,	Flycatcher.
,, 406 ,,	Osprey ,,	Flycatcher.
One Coast Defence Training Flight	Osprey ,,	Hart.

MISCELLANEOUS.

FORMATION OF THE ARMAMENT GROUP.—H.Q. Armament Group formed at Eastchurch on 1st February, 1934.

DISBANDMENT OF NO. 21 GROUP.—No. 21 Group was disbanded with effect from 1st February, 1934. The units hitherto administered by the Group are from that date administered direct by Inland Area Headquarters.

ANNUAL CAMPS AND AFFILIATIONS.—Details of the main training exercises which will be carried out by units of the Royal Air Force and the Auxiliary Air Force during the present year were announced in an Air Ministry communication of 4th April. They include :—

Summer Camps of Cadre and Auxiliary Air Force Squadrons.

Armament Training Camps.

Affiliations of Royal Air Force Fighter to Royal Air Force Bomber Squadrons.

Affiliations of Royal Air Force Fighter to Royal Air Force Flying Boat Squadrons.

Affiliations of Royal Air Force Fighter Squadrons to Auxiliary Air Force and Cadre Squadrons.

The affiliations between Fighter and Bomber Squadrons, etc., consist of the practice of offensive and defensive tactics. This applies both to the Service and to the Auxiliary and Cadre Squadrons.

AUXILIARY AIR FORCE

NEW HEADQUARTERS OF No. 604 (B) SQUADRON.—Marshal of the Royal Air Force Lord Trenchard opened the new Town Headquarters of No. 604 (County of Middlesex) Auxiliary Air Force Squadron, at Heath Brow, Hampstead Heath, on Saturday, 7th April.

The County of Middlesex Squadron was formed in March, 1930, and is stationed at Hendon Aerodrome, where its normal flying training is carried out. The unit had not, hitherto, been provided with Town Headquarters. These have now been equipped for use as the centre for ground instruction.

OVERSEAS COMMANDS.

AIR TOURS AND FLIGHTS.

CHIEF OF THE AIR STAFF'S TOUR.—Air Chief Marshal Sir Edward L. Ellington, Chief of the Air Staff, left London on 23rd March to undertake an inspection of the R.A.F. units in Egypt, Iraq and the Middle East. Arriving at Port Said on 4th April in s.s. "Rampura," Sir Edward proceeded that day in Service aircraft to Amman, via Abu Sueir, and to Baghdad on 5th April. After visiting units of the Iraq Command, the tour was continued to Jerusalem on 9th April and to Cairo on the 10th. From Cairo the C.A.S. inspected units in the Middle East Command between 11th and 14th April, and on the 15th flew from Alexandria to Athens by the regular Imperial Airways Service. On the following day he flew to Brindisi in a Service flying boat of No. 202 (Flying Boat) Squadron, continuing on the 17th to Malta. He is returning from Malta by s.s. "Chitral," and is due to arrive in London on 21st April.

SOUTH EAST AND AFRICAN TOUR, 1934.—A composite flight of five Fairey IIIF. aircraft of No. 45 (Bomber) Squadron and four Victoria aircraft of No. 216 (Bomber Transport) Squadron left Heliopolis on 26th February for a tour to East Africa and the Transvaal. The outward itinerary was made via Wadī Halfa, Khartum, Juba, Kisumu, Nairobi-Moshi, Dodoma, M'Beya, M'Pika, Broken Hill, Salisbury, Bulawayo, and Pieterburg, to Pretoria, which was reached on 8th March. Leaving Pretoria on 14th March, returned to Bulawayo, and on the 19th arrived at Livingstone, where the aircraft remained for four days, carrying out local visits. On 23rd March, the aircraft proceeded to Lusaka, on 24th to Salisbury, and on 30th March to Tomba. On 3rd April the flight was continued via Chileka, Lilongwe, Abercorn and Tabora to Dar-es-Salaam, which was reached on 10th April. In taking off from Lilongwe on 7th April, one of the Fairey IIIF. aircraft crashed, but the two occupants were uninjured. The flight was continued from Dar-es-Salaam to Mombassa on 15th April, and to Nairobi on 17th April.

After paying visits to Lokitiary, Lodwar and Eldoret, the aircraft were due to leave Nairobi on 21st April and, flying via Entebbe, Juba, Malakal, Khartum, Wadi Halfa and Aswan, to return to Heliopolis on 30th April.

RHODESIAN TOUR.—The aircraft accompanying Sir Philip Cunliffe-Lister, Secretary of State for the Colonies, on his tour of East Africa, reached Nairobi on 19th January. Owing, however, to Sir Philip's illness, the separate programme arranged for his tour of Kenya Colony had to be cancelled.

The Rhodesian tour, accompanied by Air Vice-Marshal C. L. N. Newall, continued from Nairobi on 22nd January and reached Livingstone on 26th January, via Dodoma, M'Beya, Abercorn, M'Pika and M'Dola. After carrying out local flights to Lusaka and Mongu, the aircraft proceeded to Salisbury on 7th February, and returning via Zomba, M'Pika, M'Beya and Dodoma, arrived at Dar-es-Salaam on the 12th. Leaving Dar-es-Salaam on 15th February, the homeward journey was continued via Nairobi, Wajir and Lodwar to Lokitiang, whence the four Gordon aircraft proceeded on 23rd February to Khartum, their home station, arriving on the 27th. Air Vice-Marshal C. L. N. Newall meanwhile proceeded with the two Victoria aircraft on 23rd February to Entebbe, and the following day to Nairobi. Leaving Nairobi again on 8th March, the aircraft proceeded to Heliopolis via Juba, Malakal, Khartoum and Wadi Halfa, the cruise being completed on 12th March.

IRAQ–SINGAPORE AND RETURN.—A flight, composed of four Wapiti aircraft of No. 84 (Bomber) Squadron and two Pegasus Victoria aircraft of No. 70 (Bomber Transport) Squadron left Shaibah on 15th January for India and Singapore. The aircraft arrived at Calcutta on 21st January and at Singapore on 26th January. A stay of five days was made at the latter place, the return journey being commenced on 1st February. The flight arrived at Shaibah on 17th February, after covering some 10,600 miles.

FLYING-BOAT CRUISE FROM BASRA TO CALCUTTA AND RETURN.—Two Rangoon flying boats of No. 203 (Flying Boat) Squadron left Basra on 1st February on a cruise to Calcutta and return, via the Persian Gulf and Indian Coast routes. The outward journey, which was completed on 12th February, covered the following itinerary:—Basra—Bahrein—Ras Al Khaimah—Gwadur—Karachi—Bombay—Mangalore—Cochin—Colombo—Trincomali—Madras—Vizagapatam—Calcutta.

The return journey commenced on 18th February, and a similar route was followed. The aircraft reached Basra on 13th March, after covering a distance of about 8,300 miles.

INDIA–SINGAPORE AND RETURN.—A flight composed of four Hart aircraft of No. 11 (Bomber) Squadron and one Victoria aircraft of Heavy Transport Flight left Risaplur on 1st February for Singapore. Proceeding via Ambala—Allahabad—Dacca—Akyab—Rangoon—Mergui—Alor Star—the flight arrived at Singapore on 9th February. One Hart aircraft crashed on landing at Mergui, but the crew were uninjured.

The return journey, following a similar route, commenced on 16th February, and the flight arrived at Risalpur on 25th February.

SINGAPORE–HONG KONG FLIGHT.—Three Southampton flying boats of No. 205 (Flying Boat) Squadron, under the command of Group Captain S. W. Smith, Officer Commanding, R.A.F., Far East, left Singapore on 2nd April on a 4,000 miles flight to Hong Kong and back. The aircraft reached Sibu, Sarawak, on the first day, and on 4th April continued to Kudat, British North Borneo. Continuing on 6th April, the flying boats proceeded to Puerto Princessa, Philippine Islands;

Manila; and Salomague. On 17th April the flight proceeded to Hong Kong, where a stay of eleven days was made before going on to Macao on the 28th April. Thence the aircraft will fly to Hai Phong, French Indo-China; Tourane; Saigon; and Kota Bahru, Malaya; arriving back at Singapore on 13th May.

ORGANIZATION.

R.A.F., IRAQ.—As from 1st February, 1934, the R.A.F. in Iraq have been designed "British Forces in Iraq."

R.A.F. HEADQUARTERS, INDIA.—On 18th April R.A.F. Headquarters moved from New Delhi to Simla.

No. 100 (BOMBER) SQUADRON.—This Squadron arrived at Singapore on 5th January.

FOREIGN

FRANCE.

REORGANIZATION OF THE ARMÉE DE L'AIR.—General Denain, Air Minister, has proposed that the first instalment of the funds provided in the latest plan for the armament and equipment of the *Armée de l'Air* shall be expended as follows:—630,000,000 frs. for the renewal of heavy defence machines, including those of the Naval Air Service, and for the renewal of a certain proportion of the *escadrilles* of the light defence forces; 120,000,000 frs. for experiments; 100,000,000 frs. for a reserve of munitions; 8,000,000 frs. for new aerodrome sites and their equipment; 40,000,000 frs. to prepare for industrial mobilization, the purchase of raw materials, tools and for decentralising factories; and 30,000,000 frs. for research and experiment work.

NAVAL AIR SERVICE.—The naval estimates for 1934-35 include 309,000,000 frs. for naval aviation. A sum of 1,000,000 frs. had already been appropriated from the previous year for the development of large flying boats. The Minister of Marine, M. Piétri, has asked for a further supplementary vote of 150,000,000 frs. If this is passed by the Chamber and Senate, he will have about £4,600,000 available for developing the Naval Air Service.

CORSICAN AIR BASE.—Two new air bases are being built in Corsica: one on the West coast about six miles South of Bastia, which will be a combined landplane and seaplane base; and the other at Porto Vecchio at the southern extremity of the island. A seaplane base is already in existence at Ajaccio on the East coast.

GERMANY.

AMENDMENTS AND ADDITIONS TO GERMAN AIR LEGISLATION.—In accordance with the terms of the "Law relating to the Administration of Aviation in the German Reich," dated 15th December, 1933, which came into force on 1st January, 1934, the control previously exercised by individual German States in certain spheres of aviation has now passed to the central Reich Government, and the German Air Minister becomes the responsible authority for "Air Police" and "Safety in Aviation."

The law also enacts that the *Deutscher Luftsport Verband* (German Air Sport Society) and the *Reichsluftschutzband* (German Air Defence League) shall have the same status as those organizations which were recognised by the Presidential Decree of 21st March, 1933, as supporters of the German National Socialist Government.

JAPAN

INCREASE OF THE AIR FORCE.—It was reported from Tokio on 24th April that the air force is to be nearly doubled in the course of the next three years. The present strength is 646 machines; by 1936 eighteen squadrons of 500 machines will have been added at the rate of six squadrons a year, starting in the current year. This increase will cost 44,000,000 yen (£5,500,000). The expenditure has been provided for in the budget, and has already been approved.

NEW NAVAL AIR STATION.—It is reported that a Naval Air Station is to be opened at Ominato, South of the Island of Hokkaido, Northern Japan. It is stated that about 450 officers and men with 12 aircraft will be stationed there.

AIR DEFENCE CORPS.—It is stated in the Press that the Military Authorities have decided to establish air defence corps in Tokyo, Osaka, Nagoya and in the Northern part of the island of Kyushu. This is expected to entail the expenditure of £2,000,000 which will meet the cost of aircraft, armament and other supplies. It is understood that prior to this announcement there was no specific organization for Home Defence.

AVIATION BASES IN SOUTH SEA ISLANDS.—The Governor of the Japanese Mandated Islands has announced the intention of constructing aerodromes and landing grounds in the South Sea Islands "in order to facilitate communications between the Islands and Japan."

SPAIN.

AUTOGIRO TRIAL IN A CARRIER.—Señor don Juan de la Cierva has carried out a successful trial in landing one of his latest type Direct Control C.30 autogiros on the deck of the aircraft-carrier "Dedalo." This is a particularly noteworthy achievement in that the "Dedalo" has not got a long flush flying-off deck, but only a platform abaft the funnel, on which she normally carries seaplanes which are hoisted out with derricks, and a space forward for a small airship which can be attached to a mooring mast.

The first occasion when an autogiro landed on and flew off an aircraft-carrier was in 1931, when the United States Navy Air Service carried out experiments with three American-built autogiros in the "Langley."

SWEDEN.

BOMBING AIRCRAFT.—A private Bill has been submitted to the Riksdag requesting provision in the Budget Estimates for 1934/35 and 1935/36 for the purchase of medium-weight bombing aircraft. The Bill provides for an expenditure of some 8,715,000 kroner (£479,900 at par=18.16 kroner to £1) for the acquisition of 24 aircraft, 48 engines, and the necessary armament, equipment, etc.; this expenditure to be borne in equal proportions during the budgetary years in question.

The Bill draws attention to the fact that the first-line strength of the Swedish Royal Air Force is much below that anticipated in the Defence Bill of 1925, and that the foreign political situation makes it imperative that something be done to remedy this deficiency immediately.

THE SWEDISH ROYAL AIR FORCE BUDGET, 1934/35.—In connection with the previous paragraph, it is interesting to note that the estimated expenditure on the Swedish Royal Air Force for the year 1934/35 has been announced as 8,792,787 kroner (£484,184 at par), an increase of 854,634 kroner on the amount voted in 1933/34.

In the autumn of last year, however, the Swedish Air Board was reported as having applied to the Ministry of Defence for a grant of 13,735,675 kroner (£756,370) for the year 1934/35, an increase of approximately 73 per cent. over the 1933/34 vote. The Board had been forced to report that even in the present state of its organization, the Air Force could not satisfactorily be maintained without increased financial support. The only alternative in the view of the Board would be a reduction in the present size of the force.

It will be seen, therefore, that the proposed Budget for 1934/35, although showing a slight increase over the previous year's vote, is still substantially below the amount applied for by the Air Board.

UNITED STATES.

Expansion of the Air Services.—Bills have recently been presented to Congress seeking approval for large increases in the strength of the Naval Air Service and the Army Air Corps.

Congress has passed a Bill authorising the building up of the Navy to Treaty strength by means of a programme extending over the next five years. Included in this Bill is a clause empowering the President to authorise construction of aircraft necessary to equip all new aircraft-carrying vessels. The Navy Department has stated that for this purpose, and for aircraft requirements at Pearl Harbour, Hawaii, Panama Canal Zone, and the Marine Corps Air Service, a total of 1,184 additional aircraft will be necessary, at an estimated cost of 95 million dollars. On this basis, the aircraft establishment of the Naval Air Service will be increased in five years from 1,000 to 2,184.

Bills have also been presented to Congress by the Army, seeking approval for large increases of aircraft for the Air Corps within the next five years. While no definite total increase of aircraft has been announced, it is stated that the programme will materially expand the present strength of 1,800 aircraft. One part of the proposed programme is said to include the purchase of 900 additional aircraft to be used as a separate air unit operating directly under control of the G.O.C. The unit would be known as the "General Headquarters Air Force," and would comprise all military elements of aviation. This proposed increase is, however, only a part of the general expansion programme which the Army authorities have put forward.

Non-Stop Flight from San Francisco to Hawaii.—The six twin-engine Consolidated P2-Y1 flying boats, which in September carried out a non-stop flight from Norfolk-Virginia, to Coco Solo-Panama, have since made further notable flights. During the same month they flew from Coco Solo to San Diego, a distance of 2,900 miles with a stop for re-fuelling purposes at Acapulo, Mexico.

On 10th January they left San Francisco for Honolulu, Hawaii, which place was reached the following day. The distance of this latest flight, which was accomplished in just under 25 hours, was 2,150 nautical miles. The following figures in connection with the flight are of interest. Each flying boat weighed 17 tons as it took off from San Francisco. The boat itself weighed 20,000 pounds. Each boat carried 1,750 gallons of petrol, weighing 13,565 pounds; a crew of five average weight 160 pounds, total 800 pounds; 75 pounds of food; 80 pounds of water; and 80 pounds of oil. The 1,750 gallons of petrol was sufficient, according to estimate, for 32 to 35 hours flying. The flying boats were so heavily loaded that four of them took nearly two hours to rise from the water. The flight across the Pacific was completed without incident, and the route was patrolled by ships stationed at intervals of 300 miles.

AIRSHIP NOTES

GERMANY.

THE "GRAF ZEPPELIN."—A further series of flights between Friedrichshafen, Pernambuco and Rio de Janeiro were successfully accomplished by the airship "Graf Zeppelin" during 1933. In the course of her programme, the airship not only accomplished her fiftieth crossing of the Atlantic, but established two new records: firstly, by conveying mails from Pernambuco to Friedrichshafen in 71 hours; and secondly, by flying to Pernambuco in 61 hours 28 minutes, the latter feat incidentally being a record for any type of aircraft.

The following is the record of the "Graf Zeppelin" up to the end of that year:—

No. of flights	355
Miles flown	455,899
Flying hours	7,487
Passengers carried	17,500
Freight carried	37 tons.
Mail carried	20 tons.

The airship has been undergoing an overhaul in preparation for the 1934 season.

THE "L.Z.129."—The construction of the new airship "L.Z.129" is still proceeding, but completion is not expected until the end of 1934 or the beginning of 1935. The delay is understood to be due to development work on the heavy oil engines intended for the ship.

UNITED STATES.

THE "MACON'S" AEROPLANES.—The aeroplanes normally carried by the "Macon" are five Curtis F.9C/2, or Sparrow-Hawk single-seater fighter biplanes; but lately two Waco F/2 three-seater biplanes of the standard commercial type appear to have been substituted for two of the fighter machines. These latter are intended for transporting personnel between the airship and the ground or aircraft carriers. Presumably they are for peace exercises only.

The aeroplanes are carried on trapezes running on an overhead rail in a compartment 75 ft. long by 60 ft. wide within the airship. Collapsible doors in the bottom cover a T-shaped opening, through which the aeroplanes can be lowered one at a time before taking off or after hooking on.

REVIEWS OF BOOKS

GENERAL.

Empire Unity and Defence. By Major-General J. F. C. Fuller. (Arrowsmith). 10s. 6d.

Few problems can have aroused greater interest in recent years than the proposal to obtain greater efficiency, and therefore greater security, by centralising in one form or another the higher control of the fighting Services. In spite of all that has been written and said about it—in spite of the findings of the many conferences and committees which have discussed it—the subject is still very much alive. The co-ordination of the means of defence is, however, only a part of a much wider problem, the co-ordination of the British Empire. It is this problem in its widest aspects that General Fuller has set out to explore, not so much with the idea of saying that he has found the right answer, though it is true he suggests a solution, but rather in order to encourage others to give it the attention and constructive thought which it undoubtedly deserves.

The first half of this book is mainly historical, tracing briefly the growth of the idea of Imperial co-ordination. The author shows how during the period from 1854-1914 all attempts to bind the Empire into a defensive unit failed owing to the fears that such unity must react unfavourably on the independence of the Dominions. During the War some degree of harmony and a semblance of control was arrived at, but with the coming of peace the ever-growing tendency to place complete independence before all other questions once more made the establishment of anything in the nature of a centralised organ of control an impossibility. But, that some such organ is essential is the author's main thesis. "We arrive by every path, whether it be political, military or economic at the crucial problem that co-operation, security, and economic unity require not only confidence and goodwill but machinery to produce and sustain them."

At present, he argues, the Empire's foreign policy is a purely British product, and for advice on Imperial defence policy the Government must rely on the Committee of Imperial Defence which is neither Imperial nor, in his opinion, so constituted as to fulfil its role adequately.

General Fuller urges the formation of an Imperial Council, upon whose shoulders would rest the responsibility for formulating an Imperial policy and for suggesting to the Cabinets of the sister nations a division of the work required, so that they may enforce this policy unitedly. He does not, however, go into details of the organization of such a council, and it is on this rock that all similar proposals in the past have been shipwrecked. The greater part of the second half of the book is devoted to urging the necessity for the creation of a Ministry of National Defence, in which would be included a combined or Great General Staff to consider grand strategy. Only in this way, he considers, can there be created for the Empire a grand strategical brain, without which there is little hope of obtaining adequate and economic security.

This book will undoubtedly raise in the minds of all who read it, criticisms and objections, but that is exactly what the author wants so long as such

criticisms and objections are positive and constructive and not merely negative and destructive. As regards the past, it presents an adequate picture of the attempts that have already been made to deal with the problem and the lessons to be learnt therefrom. As regards the future, it offers constructive proposals which might well form the basis for discussion. "The guiding principles of reform" on page 44 would not be out of place in the agenda of the next Imperial Conference.

Behind the Smoke Screen. By Brigadier-General P. R. C. Groves, C.B., C.M.G., D.S.O. (Faber and Faber). 15s.

A writer who sets out to plead a national cause, but who indulges in *post mortems* of a personal character, weakens his case, because he gives rise to the suspicion that his arguments may be coloured by a private grievance. General Groves has spoilt what might have been powerful pleading for a great cause by attacking individuals in positions of authority and responsibility who, in the past, seem to him to have failed in their duty to maintain an adequate Air Force.

All thinking and patriotic people in this country—and especially in the three Services—will agree with him that the Junior Service has received less than its fair share of attention from successive Governments since the War; but, even if some of his readers may sympathise with his condemnation of the failure of the political element to maintain a policy of adequate measures of air defence, he will be in a small minority in believing that the professional heads have not fought, and fought hard, for their Service. He seems to forget that it is the Government that dictates policy, and throughout those years successive governments have elected to take risks with all our defences in compliance with the undoubted popular demand—indeed, the urgent necessity—for reducing national expenditure of every kind.

His review of international relations and exposure of "new facts and old illusions" and the dangerous myth of "no more war" are admirable in their sincerity and frankness. On the other hand, when he portrays the nature and extent of potential forms of attack, it is regrettable to find an officer of his experience and literary ability emulating the example of some of the least responsible sections of our "Stunt Press." He exaggerates the dangers and scope of air raids, and does harm to national interests by advocating a vast increase of the Air Force at the expense of the older Services. He alienates sympathy by his contemptuous references to the military (and naval) mind, and while he harps on the need for a larger perspective which will visualize a "war of areas" instead of a "war of fronts," his own vision does not seem to carry him beyond areas covered by the radius of action of the long-distance bomber. He fails to take adequate account of those vast areas far beyond the reach of any land-based aircraft, in which the life-stream of our food and fuel supplies could be paralysed if war made them dependent on our present inadequate Navy.

With his review of the international situation as regards armaments, we find ourselves in general agreement. Strategically, however, some of his contentions will not bear the acid test of a map of Western Europe and a pair of dividers. The use of these will at once make it apparent that, although we may have sunk to being the fifth or sixth Air Power, there is, as yet, only one of our superiors in the air who could attack this country effectively from that element, and that is our late ally and sworn confederate, France.

In his arguments regarding the tactical capabilities of the respective Services the author is so obviously one-sided as to discredit many of his conclusions, while in a number of his technical and historical statements he is also at fault.

This book might have been of real value to the present-day student of Imperial Defence problems had the writer but avoided personalities and adhered to his own dictum that " exaggeration tends to repel the publicity it courts."

T. E. Lawrence, In Arabia and After. By Liddell Hart. (Jonathan Cape). 15s.

This is one of the most persuasive and attractive of Captain Liddell Hart's books. It is something more than a commentary upon Lawrence's own writings because, in the first place, it attempts to set the Arab revolt in perspective to the British campaigns in Sinai and Palestine, and, in the second, it seeks to draw lessons, both strategical and tactical, from the Arab operations either instituted or conducted by Lawrence. It is, nevertheless, popular in form and requires of the reader no special technical knowledge. It is also of interest because of its excellent sketch of Lawrence's early career, which, with his remarkable reading, formed the preparation for his role in the Great War, and of a similar sketch of his little-known immediate post-war activities. Lastly, it contains a few letters written by Lawrence in war-time, a number of comments on matters of fact in the drafts submitted to him by the writer, and some good photographs.

There is sometimes a disposition to underrate the importance of the part played by the Arabs, and therefore of that played by Lawrence, in the Hejaz, Trans-Jordan, and the Hauran. Those who study the campaign will almost certainly find themselves in agreement with Captain Liddell Hart and in opposition to this tendency. The Arabs, from the time of their entry into the war, not only locked up considerable Turkish forces ; they were also responsible for a continuous strain upon the Turkish organization and an even more serious threat. In the final offensive their role was of particular importance. The strategy and tactics of Lawrence cannot be discussed here, but their originality and effectiveness make them worthy of the attention devoted to them. That is not to say that all Captain Liddell Hart's conclusions appear justifiable or that his generalizations are not too sweeping. Often enough one finds oneself disagreeing with him, especially as regards his " Epilogue." But even when this is most the case he is provocative of thought ; and that is one of the chief, if not the chief, virtues that can be ascribed to military criticism.

An Outline of the Principles of War. By Lieutenant-Colonel R. A. E. Voysey, T.A. Res. (Diss Publishing Co., Diss). 15s. 6d.

In his foreword to this volume Lieut-General Sir George MacMunn defines the work as a high-class " cram book." This description is perfectly correct. After writing generally on the Principles of War in Chapter I, the writer devotes one chapter apiece to the six main principles, illustrating them from campaigns ranging from 1796 to 1870. There is also one illustration from the Russo-Japanese War, the Battle of Hamaton (1904), and two illustrations from the Battle of Megiddo, 1918, to emphasize the use of surprise and mobility ; another from the action of Néry also concerning mobility. The book is a good, solid manual, replete with facts and dates, which seem to be laudably correct and informative.

NAVAL.

The Navy and the Next War. By Captain Bernard Acworth, D.S.O., R.N. (Eyre & Spottiswoode). 8s. 6d.

If Captain Acworth had, of late years, made it his chief object in life to write provocative books, he could certainly be credited with an appreciable measure of success ; and if they had been penned " tongue in cheek " with the intention of

stimulating thought and discussion in the Services and amongst students of war they would have much to commend them. Unfortunately, they appear to have been written in grim earnest and as if the author felt he was charged with a sacred mission to expose the fallacies of accepted doctrines, the stupidity of successive Boards of Admiralty, and the machiavellian designs of the oil trade.

So far as he portrays those dangers to this country and the Empire which are due to the fact that we have been going through one of our periodical phases of neglecting to provide for the defence of our sea-borne supplies, he is doing a real service to the nation; but by underestimating the value and potentialities of aircraft, by harping on the advantages of returning to coal in the Navy, and by advocating the replacement of our present fleet by ships of his own grotesque designs, he is misleading a public already singularly ill-informed on Service matters; and therein his books are dangerous and do harm.

This latest work is little more than an expansion of views which the author has already put forward; nevertheless he intrigues us by examining the conditions of war in the East, and also in Europe, and his investigations lead him to the conclusion that in neither case would our present-day fleet enable us to achieve success. We will not quarrel with him in that conclusion. Where we join issue with him, however, is that we believe our weakness to arise more from the lack of quantity than from any poverty in the quality—of our ships.

He then proceeds to fight these two wars over again with his redesigned Navy, and proves (to his own satisfaction) how vastly superior is the fleet of his imagination's creation. Apart from all else, however, his comparison of our potential achievements in the Far East under the new conditions is somewhat vitiated by the fact that he assumes that his fleet will be able to use as a base a Hong Kong whose defences are adequate to defend it until the arrival of re-inforcements. Moreover, he expects the British Admiral commanding a fleet of six 17.5 knot battleships and twelve 17.5 knot armoured cruisers to avoid action with the Japanese battle fleet of nine 22.5 knot or faster battleships with much more powerful armaments, while attacking the Japanese communications; truly a formidable task.

Space will not permit our criticising Captain Acworth's designs in detail; but he has produced a fleet which is so slow that it could never bring an enemy, of whatever class of existing ships, to action unless they definitely sought battle; his battleships are superior in armour but deficient in gun power; and in lieu of the battle cruiser, he revives the slow armoured cruiser—a class which proved singularly useless in the last war. For the rest, his designs for new ship construction will not bear the test of expert criticism in several important respects.

We will not, here, attempt to refute his contention that the Admiralty ought to give up oil and return to coal firing in the fleet. The whole subject is exhaustively and finally dealt with by Engineer Vice-Admiral Skelton in a lecture which appears earlier in this number of the JOURNAL. Anyone who reads this expert treatment of the matter will no longer be misled by specious arguments.

Captain Acworth is such a painstaking and gifted writer that it is a great pity that he is beset with the desire to "put the clock back," and return to old days and old ways of fighting. In his international outlook he is a realist; but his technical viewpoint is that of an antiquarian.

New Light on Jutland. By the Rev. J. L. Pastfield, M.A. (Oxon). (William Heinemann, Ltd.) 1s. 0d.

This little booklet deals essentially with the technical, as distinct from the tactical, aspects of the battle of Jutland. Compressed into a few pages is an

extraordinarily interesting and accurate record of such matters as visibility, fire effect, range finders, ammunition, and armour.

The author shows that the impression of the superiority of German gunnery, material, and shipbuilding which prevailed after the War was in many respects unfounded. It is true that some of the lyddite shell supplied to our newer ships detonated before piercing armour; but the rest of our shell proved remarkably effective in penetrating the German armour, which, though generally thicker, was less efficient than that of our ships.

Mr. Pastfield concludes that "but for the cordite danger, it is doubtful if the Royal Navy would have lost any capital ships," and that the Germans benefited from their ships being better protected and safeguarded from that danger. There can be no doubt that the German charges and ammunition supply were safer than ours; several cordite fires in their ships burned out instead of causing explosions. This can be attributed to the fact, which the author mentions, that the rear sections of the charges were enclosed in brass cartridges—in fact even the heavy guns were Q.F. instead of B.L.; also the remaining sections were covered in material which resisted fire better than our silk-cloth bags. The stowage in their magazines was also safer, and their supply did not involve the risk of uncovered powder igniters. The German precautions against flash, to which some of our worst casualties have generally been attributed, were not, it is believed, very different from ours, and in some respects they were even less complete.

Although it is not stated specifically, this summary of the gunnery efficiency of the two fleets makes it more than ever apparent how much the Grand Fleet owed to the installation of the director system of firing. Even at this distant date, it makes one shudder to think of what would have happened if, in 1913, H.M.S. "Thunderer" had not made a success of the last chance Sir Percy Scott had of proving the advantages of that system, and if, in the face of very great opposition, it had not been fitted and taken into use before Jutland.

This little work shows a painstaking study of many very technical details, and its accuracy is remarkable. The author rightly sums up his investigations by saying that it was the offensive power of our heavier guns which drove our adversary from the scene of action. To this day, Germany plays the ridiculous farce of celebrating the victory of the battle of Skagerrak; but as Mr. Pastfield pointedly remarks "A victorious fleet does not seek the shelter of its ports at the highest speed possible."

ARMY.

The Russian Campaign of 1914; The Beginning of the War and Operations in East Prussia. By Nicholas N. Golovine, Lieutenant-General, Imperial Russian Army. (Hugh Rees). 20s.

This work, by an acknowledged authority of Russian military history, is a welcome addition to the literature of the opening phases of the War. As is to be expected, the tenour of the argument is inclined to be lenient to the shortcomings of the Russian Army. With much that the writer pleads—and much that is contained in these pages will come as entirely new matter to most readers—we can wholeheartedly agree. The Russian General Staff were sadly handicapped in their mobilization plans by conditions of which other high commands remained blissfully ignorant. Nevertheless, one cannot concur with General Golovine in his somewhat mild remarks concerning the crass negligence that gave away to the German commanders the whole of the Russian orders, which were sent out by

radio-telegraphy without having been inciphered. The result was the inevitable German victory at Tannenberg. From that defeat the Russian Staff never recovered.

After recounting the Russian mobilization, with great care for the benefit of non-Russian readers, the operations of the First and Second Russian Armies are studied separately and in detail until after the Battle of the Masurian Lakes. By these means General Golovine brings home to the reader the lamentable lack of co-operation and even goodwill existing between these two armies and the utter failure of General Jilinsky to combine their efforts. There could be no better lesson in military history of how a faulty plan of campaign inevitably leads to failure. Even then any hope Jilinsky might have had of saving his forces from disaster were destroyed by the gross neglect of providing proper ciphers for the transmission of the necessary orders by W/T.

This is a valuable book for students of the War.

Old Cavalry Stations. By B. Granville Baker, F.R.G.S., F.R. Hist. S. (Heath Cranton). 12s. 6d.

A discursive and agreeably written book dealing with all stations of Britain where cavalry regiments have been quartered in the past. The writer has illustrated his own work in an attractive way and shows more than superficial acquaintance with the cavalry soldier of the past. He quotes Kipling, Thomas Hardy, and Thackeray appositely on many occasions; but is he right, when mentioning Richard Steele—in Thackeray's "Esmond"—to assign him to the Life Guards; surely he was in the Blues? The whole book is full of pleasant anecdotes, but it is unnecessary, in talking of the cavalryman's adieu to his horse, to complain that the public is being cheated of a tear if the military artist were to display "the tank-man fondly embracing the broken bits of his greasy war-machine": that is pure bathos.

REGIMENTAL HISTORIES.

The History of the Seventh (Service) Battalion The Royal Sussex Regiment, 1914-1919. Edited by Owen Rutter. (The Times Publishing Co.). 5s.

This regimental history stands on a higher plane than many other productions of similar type. It is written from a wider angle and is modelled to some extent on the Official History of the War, more particularly with regard to its account of the enemy's movements. In particular, the reader's attention will be claimed by the description of the Battle of Cambrai, in which the ultimate responsibility for the failure to confirm the original success is ascribed to higher authority. The battalion had a distinguished career throughout the War. The usual Appendices are well compressed, while the Index is unusually complete and useful.

The Cambridgeshires: 1914 to 1919. By Brigadier-General E. Riddell, C.M.G., D.S.O., and Colonel M. C. Clayton, D.S.O., D.L. (Bowes & Bowes, Cambridge). 10s. 6d.

The Cambridgeshire Regiment was first raised as a volunteer battalion in 1860, the former unit of that name, the 30th Foot, having become the 1st Battalion, East Lancashire Regiment. The history of the battalion is related in the introduction to the volume. The narrative opens with the mobilization of 1914. In March, 1915, it proceeded to Ypres; it joined the 39th Division in 1916; fought

through the Somme battles; was again at Ypres in 1917, where it went through the Passchendaele fighting. Then came the battle of Bapaume, in 1918, and the final advance from Vimy Ridge.

The story is told in a singularly vivid style, being written in turn by two officers who were actually present with the unit, while the whole narrative is composed of personal reminiscences. There are a few pages of Appendices and some well chosen photographs. It is a work of a far wider interest than the majority of regimental histories.

History of the 2nd Sikhs, 12th Frontier Force Regiment, 1846-1933. Compiled by Captain C. W. May. (E. C. Davis, Jubbulpore).

This unit was formed in 1846 as the 2nd Infantry Regiment of the Frontier Brigade, and was then known as the 2nd Sikhs until 1903, when it was named the 52nd Sikhs (F.F.). Finally, in 1933, it was given its present designation. Its career on the frontier has been filled with active service experiences. In 1880 it participated in Robert's march to Kandahar. In 1904 it went to Somaliland. During the Great War it served on the Frontier until 1917, when it proceeded to Mesopotamia. In 1919-1921 it was engaged in Kurdistan. There are many Appendices and some maps, but no Index.

The Grant, Strathspey or First Highland Fencible Regiment, 1793-1799. By H. B. Mackintosh, M.B.E., F.S.A. Scot. (James D. Yeadon, Elgin). 12s. 6d.

This book is a serious and detailed historical study which covers many matters of interest, such as musketry efficiency and recruiting methods of the period. The regiment never went on active service, and it displayed many of the symptoms of unrest and sedition then wide-spread in Scotland. The book, short as it is, should appeal to the student of military history; it is well produced and illustrated.

ADDITIONS TO THE LIBRARY

GENERAL.

BEHIND THE SMOKE SCREEN. By Brigadier-General P. R. C. Groves. 15s. 8vo. (Faber & Faber, Ltd.). Presented by the Publishers.

DESCRIPTIVE ECONOMICS. By R. A. Lehfeldt. 2s. 6d. 8vo. (Oxford University Press).

THE GOVERNMENT OF GREAT BRITAIN. By A. E. Hogan and J. G. Powell. 8th Edition. 5s. 8vo. (University Tutorial Press).

THE BRITISH YEAR BOOK OF INTERNATIONAL LAW, 1930. 16s. 8vo. (Oxford University Press).

MONETARY POLICY AND THE DEPRESSION. Issued by the Royal Institute of International Affairs. 7s. 6d. 8vo. (Oxford University Press).

THE INTELLIGENT MAN'S REVIEW OF EUROPE TO-DAY. By G. D. H. and M. I. Cole. 6s. 8vo. (V. Gollancz).

INDO-CHINA—A SPORTSMAN'S OPPORTUNITY. By A. Harrison. Privately printed. 8vo. (The Mayflower Press, Plymouth). Presented by F. B. Harrison, Esq.

QUEEN ELIZABETH. By J. E. Neale. 9s. 6d. 8vo. (Jonathan Cape).

LA CROISIÈRE JAUNE—EXPEDITION CITROËN CENTRE-ASIE. By Georges Le Fèvre. 4to. (Librairie Plon, Paris). Presented by Monsieur André Citroën.

COMPLETE RECORDS IN MANUSCRIPT WITH CARD INDEX OF THE RECIPIENTS OF THE VICTORIA CROSS. Compiled and bequeathed by the late Colonel W. B. Capper, M.V.O.

MEMOIRES DE LA VIE PRIVÉE DU RETOUR, ET DU-RÈGNE DE NAPOLEON EN 1815. By Fleury de Chaboulon. 2 vols. 8vo. (John Murray, 1819). Presented by Sir Charles Oman.

GERMANY, PREPARE FOR WAR! By E. Banse, translated by Alan Harris. 10s. 6d. 8vo. (Lovat Dickson, Ltd.).

THE STATUTE OF WESTMINSTER, 1931. By R. P. Mahaffy. 8vo. (Butterworth & Co.).

WAR MEMORIES. By Princess Marie de Croy. 8vo. (Macmillan & Co.).

EMPIRE, UNITY AND DEFENCE. By Major-General J. F. C. Fuller. 10s. 6d. 8vo. (Arrowsmith, Ltd.). Presented by the Publisher.

ENGLAND UNDER QUEEN ANNE—THE PEACE AND THE PROTESTANT SUCCESSION. By G. M. Trevelyan. 21s. 8vo. (Longmans, Green & Co.)

MATABELELAND, AND THE VICTORIA FALLS. By C. G. Oates, B.A. 8vo. 1889. (Kegan Paul & Co.). Presented by Mrs. Oates.

NAVAL.

THE NAVY AND THE NEXT WAR. By Captain B. Acworth, R.N. 8s. 6d. 8vo. (Eyre & Spottiswoode). Presented by the Publishers.

UNIFORM REGULATIONS FOR OFFICERS OF THE FLEET. 5s. 6d. Fol. 1924. (H.M. Stationery Office).

MILITARY.

AN OUTLINE OF THE PRINCIPLES OF WAR. By Lieutenant-Colonel R. A. E. Voysey. 11s. 6d. 8vo. (Diss Publishing Co., Ltd.). Presented by the Author.

ELEMENTARY TACTICS—AN INTRODUCTION TO THE ART OF WAR, BRITISH SCHOOL. Vol. II. Tactical Studies by Lieutenant-Colonel R. P. Pakenham-Walsh and Major E. E. Dorman-Smith. 10s. 6d. 8vo. (Sifton Praed & Co., Ltd.). Presented by the Publishers.

OLD CAVALRY STATIONS. By B. Granville Baker. 12s. 6d. 8vo. (Heath Cranton, Ltd.). Presented by the Publisher.

THE GALLANT COMPANY. By H. R. Williams. 6s. 8vo. (Angus & Robertson, Sydney).

NAPOLEON AND HIS MARSHALS. By A. G. Macdonell. 7s. 6d. 8vo. (Macmillan & Co.).

SIDELIGHTS—AN OFFICIAL SERIES OF MILITARY CARICATURE PORTRAITS. By Sacré Fo. (Constable & Co.). Presented by Major R. Villiers.

PRINCE EUGENE—TWIN MARSHAL WITH MARLBOROUGH. By Lieutenant-General Sir George MacMunn. 10s. 6d. 8vo. (Sampson Low, Marston & Co. Ltd.).

T. E. LAWRENCE IN ARABIA AND AFTER. By Liddell Hart. 15s. 8vo. (Jonathan Cape). Presented by the Publisher.

THE BATTLE OF PINKIE. By Sir Charles W. C. Oman, K.B.E. Pamphlet reprinted from the Archæological Journal, Vol. XC. Presented by the Author.

FREEMASONRY IN THE ROYAL SCOTS. By T. R. Henderson. 8vo. (Gale & Polden). Presented by the Editor.

HIGHLAND DRESS, ARMS AND ORNAMENT. By Lord Archibald Campbell. 8vo. 1899. (Constable & Co.).

NOTES ON MILITARY UNIFORMS. M.S. Fo.

The above two books were presented by Major C. J. ffoulkes, C.B., O.B.E.

LE PLAN DE CAMPAGNE FRANÇIAS. By General Lanrezac. 8s. 8vo. (Payot, Paris).

DUTIES OF THE VARIOUS GRADES IN A EUROPEAN TROOP OF HORSE ARTILLERY. Compiled by Major G. Briggs. Pamphlet, Artillery. (Depot Press, Madras, 1855). Presented by Major-General J. Campbell, C.B., C.M.G., D.S.O.

REGIMENTAL HISTORIES.

THE CAMBRIDGESHIRES, 1914 TO 1919. By Brigadier-General E. Riddell and Colonel M. C. Clayton. 10s. 6d. 8vo. (Bowes & Bowes, Cambridge). Presented by the Publishers.

RECORDS OF THE SCINDE IRREGULAR HORSE, 1839–1855. 2 vols. Fo. Private circulation, 1902. Presented by General Sir George De S. Barrow, G.C.B., K.C.M.G.

THE HISTORY OF THE SEVENTH (SERVICE) BATTALION OF THE ROYAL SUSSEX REGIMENT. Edited by Owen Rutter. 5s. 8vo. (The Times Publishing Co., Ltd.). Presented by the Regimental History Committee.

ROYAL MARINES CORPS ALBUM. Compiled and illustrated by Captain J. S. Hicks, R.M. 8vo. (Whitehead Morris, Ltd.). Presented by the Publisher.

HISTORY OF THE SERVICES OF THE MADRAS ARTILLERY. Vol. I. By Major P. J. Begbie. 8vo. (Madras, 1852). Presented by Major-General J. Campbell, C.B., C.M.G., D.S.O.

THE GRANT, STRATHSPEY OR FIRST HIGHLAND FENCIBLE REGIMENT, 1793-1799. By H. B. Mackintosh. 8vo. (J. D. Yeadon, Elgin). Presented by the Author.

HISTORY OF THE SECOND SIKHS (12TH F.F.R.). By Captain C. W. May. 8vo. (Mission Press, Jubbulpore).

AIR.

THE WAR IN THE AIR, 1917, TO APRIL, 1918. Vol. IV. By H. A. Jones. 17s. 6d. 8vo. (Clarendon Press, Oxford). Presented by the Publisher.

Report of Proceedings at the Hundred-and-Third Anniversary Meeting

TUESDAY, 6TH MARCH, 1934, AT 3.30 P.M.

MARSHAL OF THE ROYAL AIR FORCE LORD TRENCHARD, G.C.B., D.S.O., D.C.L., LL.D. (*Chairman of the Council*), presiding.

THE SECRETARY (Captain E. Altham, R.N.): In accordance with the Bye-Law, the notice summoning this meeting was duly published in *The Times* of the 24th February.

ANNUAL REPORT FOR 1933

The Council have the honour to present their Annual Report for the year 1933.

VISIT OF H.R.H. THE DUKE OF CONNAUGHT

His Royal Highness The Duke of Connaught, as President, visited the Institution on the afternoon of 13th July, 1933, to open the Special Exhibition of pictures selected from the Crookshank Collection of Military Prints, held in the theatre.

The opportunity was taken by His Royal Highness to present Chesney Medals to Commander C. N. Robinson, R.N., and Colonel C. de W. Crookshank, M.P. By request of His Royal Highness, his visit was private, but a number of the Members of the Council, and relatives and personal friends of the recipients of the Chesney Medals were present.

VICE-PRESIDENTS

Admiral of the Fleet The Earl Jellicoe, O.M., G.C.B., G.C.V.O., LL.D., completed his term of office, and was re-elected a Vice-President of the Institution.

Field-Marshal Sir Claud W. Jacob, G.C.B., G.C.S.I., K.C.M.G., and Brigadier-General The Earl of Lucan, K.B.E., C.B., T.D., have been elected Vice-Presidents of the Institution in the vacancies caused by the deaths of Field-Marshal Sir W. R. Robertson, Bt., G.C.B., G.C.M.G., G.C.V.O., D.S.O., and Lieutenant-Colonel Sir Arthur Leetham, Kt., K.C.V.O., C.M.G., F.S.A.

COUNCIL

Lieutenant-General Sir J. F. S. D. Coleridge, K.C.B., C.M.G., D.S.O., has succeeded Field-Marshal Sir Claud W. Jacob, G.C.B., G.C.S.I., K.C.M.G., as Indian Army Representative, on the latter being elected to a Vice-President; and Colonel The Viscount Cobham, T.D., has been elected a Territorial Army Member of the Council in the vacancy caused by the election of Brigadier-General The Earl of Lucan, K.B.E., C.B., T.D., to be a Vice-President.

The following Members of the Council, having completed three years service, retire :—

ROYAL NAVY

*Admiral Sir George P. W. Hope, K.C.B., K.C.M.G.
Vice-Admiral C. J. C. Little, C.B.

ROYAL NAVAL RESERVE

*Captain Sir D. Wilson-Barker, Knt., R.D., R.N.R.

REGULAR ARMY

*General Sir J. F. Noel Birch, G.B.E., K.C.B., K.C.M.G.
*Lieutenant-General Sir J. R. E. Charles, K.C.B., C.M.G., D.S.O.
*Colonel C. H. Colvin, C.B., D.S.O.

ROYAL AIR FORCE

Air Vice-Marshal Sir Vyell Vyvyan, K.C.B., D.S.O.

Of the above, those marked * have offered themselves for re-election. This leaves one vacancy each for the Royal Navy and Royal Air Force.

Admiral Sir William E. Goodenough, G.C.B., M.V.O., has been nominated to fill the Royal Navy vacancy; and Air Marshal Sir Robert Brooke-Popham, K.C.B., C.M.G., D.S.O., A.F.C., has been nominated to fill the Royal Air Force vacancy.

REPRESENTATIVE MEMBERS

Air Vice-Marshal Sir E. R. Ludlow-Hewitt, K.C.B., C.M.G., D.S.O., M.C., has succeeded Air Chief Marshal Sir E. L. Ellington as the official representative of the Air Ministry on the Council.

EX-OFFICIO MEMBERS

Air Chief Marshal Sir E. L. Ellington, K.C.B., C.M.G., C.B.E., A.D.C., has become an ex-officio Member of the Council on taking up the appointment of Chief of the Air Staff.

Lieutenant-General C. Bonham-Carter, C.B., C.M.G., D.S.O., has succeeded General Sir William Thwaites, K.C.B., K.C.M.G., on taking up the appointment of Director-General of the Territorial Army.

Major-General C. C. Armitage, C.B., C.M.G., D.S.O., succeeds Major-General J. G. Dill, C.B., C.M.G., D.S.O., on taking up the appointment of Commandant of the Staff College, Camberley; and Air Vice-Marshal W. R. Freeman, C.B., D.S.O., M.C., succeeds Air Vice-Marshal P. B. Joubert de la Ferté, C.M.G., D.S.O., on taking up the appointment of Commandant of the Royal Air Force Staff College, Andover.

HONORARY MEMBERS

The Council regret to have to record the death of General Sir A. W. Currie, G.C.M.G., K.C.B., one of their Honorary Members representing Canada.

MEMBERSHIP

The total number of Members on the roll at the end of 1933 was 5,656, as compared with 5,739 in 1932. During the past year 196 Members joined the Institution, as compared with 553 in 1932. There were 136 withdrawals, as compared with 202 in 1932; 54 Life Members and 46 Annual Members died, and 43 Members were struck off for being two years in arrear with their subscriptions.

The details of Members joining are as follows:—

Regular Army (all arms)	104
Royal Navy	44
Indian Army	23
Territorial Army	9
Royal Air Force	6
Royal Naval Volunteer Reserve	3
Royal Marines	2
Royal Naval Reserve	2
Royal Indian Marine	2
Dominion and Colonial Forces	1
	196

This shows there is a net decrease of 83, but as the loss of Life Members does not affect the financial aspect, the financial loss on the year is 29.

The year 1933 has, not unnaturally, suffered somewhat from the abnormal influx of new Members in 1932 during the suspension of the Entrance Fee, when there was a net financial gain of 252.

FINANCE

A new heading has been introduced on the credit side of the Balance Sheet to show in detail those investments which have been made in connection with the Life Subscription Fund. It will be remembered that, in 1929, it was decided that, in future, instead of paying all Life Subscriptions into the Current Account, that account should only be credited year by year with the equivalent to an annual membership in respect of each Life Member until his subscription had been exhausted. The result has been to accumulate an appreciable sum, of which £650 has been invested. The interest on this investment is also paid into the Fund.

The Revenue Account shows a deficit on the year's working of £263 9s. 4d. This has been mainly due to the fact that the Museum Admissions fell by £262 and there was a reduction of £71 in dividends and bank interest, as compared with the year 1932. The falling off in the Museum takings is chiefly attributed to the general financial depression, which has reduced the number of visitors to London, especially those from overseas, and to an exceptionally fine summer. Trial is being made for a period of one year as from 3rd May, 1933, of a second cheap day, and admission to the Museum after Noon on Wednesdays and Saturdays is now sixpence. The loss in dividends is accounted for by the reduction from 5% to 3½% interest on War Loan and the much lower rate of bank interest on the deposit account.

The excess of expenditure over receipts can, also, be accounted for by the fact that the special efforts made to economise during 1932 entailed the postponement of certain work which could no longer be deferred in 1933. Actually, the greater part of this excess expenditure has been met by the balance of £208 13s. 1d. carried forward from 1932. Every effort will be made to effect economies during 1934, but it is not anticipated that they need be of a nature which will in any way detract from the services the Institution can render to Members.

Receipts.—The following is a comparison of the receipts under the principal headings :—

	1933			1932		
	£	*s.*	*d.*	£	*s.*	*d.*
Annual Subscriptions	5,070	0	10	5,100	10	9
Life Subscriptions	88	6	0	88	18	0
Entrance Fees	139	13	0	77	14	0
Museum Takings	1,385	1	6	1,646	14	6
Journal Sales	713	5	10	718	6	11

As an offset to the decreases already mentioned, there have been appreciable increases in Advertisements in the Journal, profits on Repairs to Colours, and Theatre Rents.

Expenditure.—The increased expenditure incurred in connection with the Museum during 1933 included the acquisition of a ship model, the " Medway," worth many hundred pounds, for £43 10s. A sum of £49 10s. was also expended on the restoration of the Institution's pictures. The increased cost of printing and postage on the Journal is due to the large influx of additional Members during the latter part of 1932.

There has been a reduction in expenditure in respect of wages, pensions, literary services, and fuel.

It will be noted that Special Expenditure amounting to £309 4s. 2d. has been incurred during the year in connection with the re-cataloguing of the Lending Library and the second instalment for the Eighth Edition of the Museum Catalogue. It should be noted that in the Revenue Account for 1932, similar expenditure was shown as having been incurred to meet the first instalment of the Catalogue, and also a sum of £99 for additional electric wiring in the Crypt. The Council have decided that in view of the nature of these expenses, they shall be met out of capital, and stock realising £350 has been sold as a first instalment towards these payments. The sale of this stock does not, however, really imply that it has been necessary to realise any of the Institution's main investments, because, it will be recalled, in the year 1930 £1,000, representing accumulated surplus income for the previous two years, was invested with a view to meeting such contingencies.

JOURNAL

The Journal has been fortunate in securing a number of very distinguished contributors during the past year. These have included British, French, and German Flag Officers, several General Officers, and well-known authorities on Imperial, air and economic matters and foreign affairs.

A special effort has been made to keep abreast of the most important current events bearing on the future welfare of the Empire or those which might lead to international complications in which the Services might become involved. Progress in weapons and other scientific developments which will affect the conduct of war have been dealt with so far as confidential restrictions permit.

The fact that the Journal is now mainly devoted to matters of present day importance does not mean, however, that archæological subjects have been entirely eliminated ; it is still one of the chief mediums for preserving interest in naval and military history and traditions, with which the Institution is inseparably associated.

The Council desire to acknowledge their indebtedness to the Naval, General, and Air Staffs for their valuable co-operation in the compilation of the professional notes, and their ready assistance at all times. The thanks of the Institution are also due to all those who have contributed lectures and articles for the Journal.

LIBRARY

The Council have for some time appreciated the fact that the existing system of cataloguing books is out of date and becoming more and more cumbersome with the continual addition of new works. At the same time, the ever-increasing use by Members of the Lending Library made it impossible

for the regular staff to undertake the heavy task of re-organization. They have, therefore, secured the services of a trained Librarian from the London University, Mr. G. W. Ellison, to carry out the entire work of re-cataloguing on modern lines, and re-organizing the lending system. It is anticipated that this will effect a very material improvement in one of the most important departments of the Institution.

During 1933, 175 books were added to the Library, and a similar number were disposed of, leaving 27,549 on charge, together with 7,430 maps. Over 800 Members received books from the Lending Library by post during the past year, in addition to those who collected books personally.

MUSEUM

The number of visitors who passed the turnstile during 1933 was 39,234, as compared with 42,329 in 1932. These figures include members of the fighting Services and Police in uniform, parties from elementary schools, Scouts, Guides, etc., all of whom are admitted free. They also include friends of Members admitted by ticket. A comparison of the "free admittance" figures is as follows :—

	1933	1932
R.U.S.I. Members' tickets	179	220
Fighting Services	1,818	1,995
Schools	1,322	759
Scouts and Guides	1,051	1,082

The number of visitors who paid for admission during 1933 was 34,864, as compared with 38,283 in 1932.

Special Exhibitions

The principal Special Exhibition during 1933 was a series of fine dioramas depicting "Empire Voyages and Discoveries" and views of typical places of importance in the Empire. These were supplemented by pictures and exhibits from the Institution's collection connected with British explorers and Empire-builders. Although there was a falling-off in the total number of visitors, it is interesting to note that nearly double the number of school-children were admitted free during the year in response to applications from educational authorities.

This Exhibition was replaced by a Naval Polar Exhibition, in time for the Christmas holidays. The Institution's collection of Arctic exhibits was augmented by a large number of relics, models, pictures and photographs connected with British polar exploration, specially lent for this Exhibition. The Council desire to express their grateful thanks to : The Admiralty; The President of the Royal Naval College, Greenwich; the Royal Geographical Society; the Scott Polar Research Institute; the Hull Municipal Museum; Lady Hilton Young; Lady Royds; Lady Shackleton; and many other private individuals for their support of this Exhibition.

New Exhibits

The Institution is again indebted to Her Majesty the Queen for the gift of an old Derby mug with a portrait of Lord Hill. The Institution also has to thank generous donors for eighty other gifts to the Museum during 1933.

On the Naval side, two very fine models, one of H.M.S. " Medway," an XVIIIth century fourth rate, and the other a modern " C " class destroyer, have been purchased ; the Institution is indebted to the Lords Commissioners of the Admiralty for the gift of a full-sized 21-in. torpedo. On the Military side, there have been added a collection of model lead soldiers, representing the Napoleonic Army and its leaders, the gift of Sir Robert Mond ; a very fine working scale model of a 6-inch 26-cwt. B.L. howitzer on travelling carriage with limber, made and presented by the Military College of Science, Woolwich ; a fine specimen of a Grecian helmet of the Vth century B.C., presented by Lady Mackenzie-Kennedy ; and a statuette of an officer of the Grenadier Company of the 11th Foot in 1686, made and presented by Mr. C. Dimes. In the aeronautical section, two additions have been made to the collection of aircraft models—a Vickers " Vildebeest " torpedo-bomber, and an Armstrong-Whitworth " Atlas II " army co-operation biplane, presented by Vickers Aviation, Ltd., and the Armstrong-Whitworth Aviation Co. respectively.

Thirty-two additions have been made to the Institution's collection of medals, including the Victoria Cross awarded to Cornet W. G. H. Bankes, 7th Hussars, for conspicuous bravery during the Indian Mutiny. A very fine collection of badges of Highland Regiments was presented by Mrs. Greet.

The Institution is also indebted to various donors, including Senior Library Clerk, G. Sheppard, for a number of interesting and valuable additions to the collection of Regimental badges and buttons.

THE CROOKSHANK COLLECTION OF MILITARY PRINTS

On 16th April, 1933, the War Office announced that Colonel C. de W. Crookshank, M.P., had presented to the Nation his collection of British Military Battle Prints, and this munificent gift had been accepted with cordial appreciation by Lord Hailsham on behalf of His Majesty's Government. It was also stated officially that the gift would be vested in the War Office and housed at the Royal United Service Institution.

The Collection has now been housed in cabinets, specially constructed by the Lord Roberts' Memorial Workshops, to enable the prints to be easily accessible.

ROYAL UNITED SERVICE INSTITUTION.

DR. **BALANCE SHEET, 31ST DECEMBER, 1933.** CR.

	£ s. d.	£ s. d.
To ACCUMULATED FUND—		
Excess of Assets over Liabilities, as at 31st December, 1932	90,787 10 10	
Add: Additions to Museum Exhibits catalogued during the year, per contra	£1,112 14 0	
Less: Withdrawals, per contra	4 5 0	
	1,108 9 0	
Appreciation of Investments—31st December, 1933 ..	381 2 8	
	92,277 2 6	
Less: Revenue Account—Balance per annexed account ..	572 13 6	
		91,704 9 0
,, MUSEUM EXHIBITS PURCHASE FUND ..		29 3 3
,, LEASEHOLD REDEMPTION FUND.. ..		3,597 1 6
,, LIFE SUBSCRIPTION FUND		686 6 7
,, SUBSCRIPTIONS, ETC., PAID IN ADVANCE		222 2 0
,, CREDITORS		1,177 3 0
Note: There is a further amount of £160 payable in respect of the new edition of the Museum Catalogue, being the final instalment not yet due.		
		£97,416 5 4

BERTRAM ABEL SMITH, *Chairman, Finance Committee.*

E. ALTHAM, *Secretary.*

	£ s. d.	£ s. d.
By LEASEHOLD BUILDING—Whitehall, S.W.1, at Cost (covered by Insurance for £40,000) ..		23,101 16 8
,, FURNITURE, FIXTURES, FITTINGS, BOOKS, MAPS, CHARTS, etc. (as valued for Insurance at 31st December, 1926, with subsequent additions at cost		10,229 0 6
,, MUSEUM EXHIBITS, etc.—(excluding Loan Collection)—		
As at 31st December, 1932	42,238 17 6	
Additions catalogued during the year ..	1,112 14 0	
	43,351 11 6	
Deduct: Withdrawals during the year ..	4 5 0	
		43,347 6 6
(NOTE: The Museum Exhibits, including Loan Collection, are covered by Insurance for £57,534 15s. 0d.)		
,, LEASEHOLD REDEMPTION FUND—Premiums paid to 31st December, 1932, on Insurance Policies for £23,100 expiring October, 1972	3,530 17 11	
Add: Premium paid during year	66 3 7	
		3,597 1 6
,, LIFE SUBSCRIPTION FUND—		
£698 16s. 10d. 2½% Conversion Stock 1944-49 at market price, 31st December, 1933 ..	646 8 7	
Cash at Bank on Deposit Account..	39 18 0	
		686 6 7
INVESTMENTS at Market Price, 31st Dec., 1933—		
£2,421 18s. 8d. 3½% India Stock	2,094 19 5	
£1,966 1s. 9d. 3½% War Loan	1,990 13 3	
£6,379 8s. 3d. 4% Funding Loan, 1960/90	7,144 18 10	
£4,701 19s. 9d 3½% Conversion Loan ..	4,784 5 6	
		16,014 17 0
,, DEBTORS AND AMOUNTS PAID IN ADVANCE		363 1 10
,, CASH AT BANK AND IN HAND		76 14 9
		£97,416 5 4

TO THE MEMBERS OF THE ROYAL UNITED SERVICE INSTITUTION.

We have audited the above Balance Sheet dated 31st December, 1933, and have obtained all the information and explanations we have required. In our opinion such Balance Sheet is properly drawn up so as to exhibit a true and correct view of the Institution's affairs according to the best of our information and the explanations given to us and as shown by the books of the Institution.

Alderman's House,
Bishopsgate, London, E.C.2.
10th February, 1934.

BARTON, MAYHEW & CO., Chartered Accountants.
Auditors.

REVENUE ACCOUNT FOR THE YEAR ENDED 31st DECEMBER, 1933

DR. CR.

	£ s. d.	£ s. d.
To Salaries	2,239 8 0	
,, Wages and National Insurance	2,021 2 11	
,, Attendants' Clothing	60 1 6	
,, Pensions	91 0 0	
		4,411 12 5
,, Museum Repairs, Sundries, and Special Exhibitions		321 4 4
,, Journal Printing	1,466 1 5	
,, Journal Postage	347 8 5	
,, Literary Services	251 19 0	
,, Shorthand Notes	40 7 8	
		2,105 16 6
,, Library Purchases and Binding of Books	142 14 10	
,, Periodicals and Newspapers	53 9 3	
		196 4 1
,, Advertising	16 16 6	
,, Lecture Expenses	11 0 6	
		27 17 0
,, Ground Rent	580 0 0	
,, Water Rate	60 14 6	
,, General Rates	537 15 5	
,, Insurance	95 3 10	
		1,273 13 9
,, Fuel	120 16 11	
,, Lighting	270 7 0	
,, General Repairs	119 18 2	
,, Restoration of Pictures	49 10 0	
,, House Sundries and Expenses	115 8 10	
		676 0 11
,, Audit Fee, 1933	52 10 0	
,, Postages, Telegrams, etc.	80 14 7	
,, Printing and Stationery	213 11 6	
,, Telephone	37 12 8	
		384 8 9
,, Contribution to Staff Pension Scheme		145 8 2
,, Leasehold Redemption Fund		66 3 7
,, Gold Medal for R.U.S.I. Prize Essay, 1932		15 8 6
		£9,623 18 0
,, Balance brought down, being excess of Expenditure over Income for the year		263 9 4
,, SPECIAL EXPENDITURE—		
Additional electrical wiring in Crypt—balance	9 17 10	
Salaries & Expenses in connection with recataloguing Lending Library	139 6 4	
8th Edition of Museum Catalogue—Second Instalment	160 0 0	
		309 4 2
		£572 13 6

	£ s. d.	£ s. d.
By Members' Subscriptions Received	5,070 0 10	
,, Voluntary Extra Subscriptions	4 11 0	
,, Life Subscriptions—Amount brought to credit	88 6 0	
,, Entrance Fees	139 13 0	
		5,302 10 10
,, Admissions to Museum	1,385 1 6	
,, Sales of Museum Catalogues and Pamphlets	58 4 5	
		1,443 5 11
,, Sales of Journal	713 5 10	
,, Advertisements in Journal	274 2 10	
		987 8 8
,, Advertisements in Museum Catalogue		10 10 8
,, Profit on Repairing Regimental Colours, etc.	40 8 6	
,, Miscellaneous Receipts	6 19 9	
		47 8 3
,, Rent of Lecture Theatre and Offices, etc.		281 5 4
,, Dividends and Interest Received		617 19 0
,, Government Grants		670 0 0
,, Balance carried down		263 9 4
		£9,623 18 0
By Balance carried to Balance Sheet		572 13 6
		£572 13 6

CHESNEY MEMORIAL MEDAL FUND.

DR. 31st DECEMBER, 1933. CR.

	£ s. d.	£ s. d.		£ s. d.	£ s. d.
To Balance of Fund at 31st December, 1932 :—			By Gold Medals 1931-32		35 0 0
Cash at Bankers	30 3 1		,, Balance of Fund at 31st December, 1933 :—		
Investment at Market Price	196 13 0		Cash at Bankers	3 4 9	
		226 16 1	Investment at Market Price :		
,, Dividends received, less Tax		5 18 10	£230 Bengal & North Western Railway 3½% Preference Stock	201 5 0	
,, Income Tax recovered in respect of year 1932-33		1 2 10			204 9 9
,, Appreciation of Investment to Market Price at 31st December, 1933		4 12 0			
		£239 9 9			£239 9 9

We have audited the above Statement of the Chesney Memorial Medal Fund for the year ended 31st December, 1933, and certify the same to be correct.

Alderman's House,
Bishopsgate, London, E.C.2.
10th February, 1934.

BARTON, MAYHEW & CO., Chartered Accountants,
Auditors.

TRENCH GASCOIGNE PRIZE FUND

DR. 31st DECEMBER, 1933. CR.

	£ s. d.	£ s. d.		£ s. d.	£ s. d.
To Balance of Fund at 31st December, 1932 :—			By First Prize Essay, 1932	31 10 0	
Cash at Bankers	83 0 10		,, Second Prize Essay, 1932	21 0 0	
Investments at Market Price	1,262 10 0				52 10 0
		1,345 10 10	,, Balance of Fund at 31st December, 1933 :—		
,, Dividends received, less Tax	41 17 10		Cash at Bankers	89 18 0	
,, ,, ,, Gross	3 10 0		Investments at Market Prices.		
		45 7 10	£1,862 London & North Eastern Railway 3% Debenture Stock	1,452 7 2	
,, Income Tax recovered in respect of year 1932-33		13 19 4	£100 3½% War Loan	101 5 0	
,, Appreciation of Investments to Market Price at 31st December, 1933		291 2 2			1,643 10 2
		£1,696 0 2			£1,696 0 2

We have audited the above Statement of the Trench Gascoigne Prize Fund for the year ended 31st December, 1933, and certify the same to be correct.

Alderman's House,
Bishopsgate, London, E.C 2.
10th February, 1934.

BARTON, MAYHEW & CO., Chartered Accountants,
Auditors.

BRACKENBURY MEMORIAL FUND

DR. 31st DECEMBER, 1933. CR.

	£ s. d.	£ s. d.		£ s. d.	£ s. d.
To Balance of Fund at 31st December, 1932—			By Expenditure on Books, etc...		12 14 4
Cash at Bankers	17 13 8		,, Royal United Service Institution—		
Investment at Market Price	415 15 9		Administration Fee		1 1 0
		433 9 5	,, Balance of Fund at 31st December, 1933—		
,, Dividends Received, Gross		14 14 8	Cash at Bankers	18 13 0	
,, Appreciation of Investment to Market Price at 31st December 1933		10 10 6	Investment at Market Price— £421 1s. 0d. 3½% War Loan	426 6 3	
					444 19 3
		£458 14 7			£458 14 7

We have audited the above Statement of the Brackenbury Memorial Fund for the year ended 31st December, 1933, and certify the same to be correct.

Alderman's House,
Bishopsgate, London, E.C.2.
10th February, 1934.

BARTON, MAYHEW & CO., Chartered Accountants,
Auditors.

EARDLEY-WILMOT MEDAL FUND

DR. 31st DECEMBER, 1933. CR.

	£ s. d.	£ s. d.		£ s. d.	£ s. d.
To Balance of Fund at 31st December, 1932—			By Balance of Fund at 31st December, 1933—		
Cash at Bankers	15 0 9		Cash at Bankers	20 0 9	
Investment at Market Price	115 0 0		Investment at Market Price—		
		130 0 9	£100 5% Conversion Loan, 1944-64 ..	116 10 0	
,, Dividends Received, Gross		5 0 0			136 10 9
,, Appreciation of Investment to Market Price at 31st December, 1933		1 10 0			
		£136 10 9			£136 10 9

We have audited the above Statement of the Eardley-Wilmot Medal Fund for the year ended 31st December, 1933, and certify the same to be correct.

Alderman's House
Bishopsgate, London, E.C.2.
10th February 1934.

BARTON, MAYHEW & CO., Chartered Accountants,
Auditors.

CHAIRMAN'S ADDRESS.

THE CHAIRMAN: Gentlemen, before putting the first resolution on the Agenda it is usual for the Chairman to give a brief summary of the principal events during his term of office.

You will have noted that we were honoured by our President, the Duke of Connaught, paying us a visit last July. It is particularly gratifying that His Royal Highness was able to take the opportunity to open an Exhibition of pictures selected from the Collection of Military Prints lately presented to the Nation by Colonel Crookshank in our lecture theatre. We are indebted to our President for his interest in this munificent gift, and the good offices of Lord Hailsham, Secretary of State for War, and Sir Herbert J. Creedy, Under-Secretary of State for War, for the decision that the Collection is now permanently housed in this Institution. It will be an invaluable addition to our pictorial records of military history and a unique possession from the point of view of military art.

You will see from the Report which the Council has presented that the year has been a somewhat difficult one financially. There has been a certain unavoidable increase in expenditure and an unfortunate falling off in Museum receipts as compared with 1932. Such difficulties, however, I think must be expected from time to time; but on the whole the Institution has come very well through the last few years of exceptional financial stress. Unlike many other accounts, ours has not so far been overdrawn at the Bank.

The one great essential is new members, and if everyone who is a member will make it his business to do one good deed for the Institution during the current year by securing a new recruit it will make a great deal of difference to our prosperity. The position is just this—the more members we get the more the Institution can do for its members.

Gentlemen, the Report and Accounts are before you, and before I formally. move them I will ask if there are any questions which any member desires to put?

If there are no questions I beg formally to move the adoption of the Report and Accounts.

THE CHAIRMAN OF THE FINANCE COMMITTEE: I have much pleasure in seconding that.

The resolution was then put and carried unanimously.

RE-ELECTION OF AUDITORS.

LIEUTENANT-COLONEL C. C. ANDERSON: I propose that Messrs. Barton, Mayhew & Co., be re-elected Auditors for the ensuing year at a fee of fifty guineas.

CAPTAIN C. R. B. KNIGHT: I have great pleasure in seconding that.

The resolution was put and carried unanimously.

VACANCIES ON THE COUNCIL.

THE CHAIRMAN: The undermentioned Officers have been nominated as Candidates for the vacancies on the Council:—

ROYAL NAVY (2 *vacancies*).
Admiral Sir George P. W. Hope, K.C.B., K.C.M.G.
Admiral Sir William E. Goodenough, G.C.B., M.V.O.

ROYAL NAVY RESERVE (1 *vacancy*).
Captain Sir David Wilson-Barker, Knt., R.D., R.N.R.

REGULAR ARMY (3 *vacancies*).

General Sir J. F. Noel Birch, G.B.E., K.C.B., K.C.M.G.
Lieutenant-General Sir J. R. E. Charles, K.C.B., C.M.G., D.S.O.
Colonel C. H. Colvin, C.B., D.S.O.

ROYAL AIR FORCE (1 *vacancy*).

Air Marshal Sir Robert Brooke-Popham, K.C.B., C.M.G., D.S.O., A.F.C.

Those in favour of these elections will please signify. (Carried unanimously)

THE GOLD MEDAL ESSAYS (MILITARY) 1933.

THE SECRETARY: I have to report that the Council duly received the Report of the Referees on the Gold Medal Essays for 1933. Their Report having been accepted, on the opening of the sealed envelopes, it was found that the Gold Medal and First Trench-Gascoigne prize had been won by Brevet-Major F. A. S. Clarke, D.S.O., of the Essex Regiment.

THE CHAIRMAN then presented the Medal to Major Clarke amidst applause.

THE SECRETARY: The Second Trench-Gascoigne Prize has been won by Brevet-Lieutenant-Colonel J. K. Dunlop, M.C., 12th London Regiment, "Rangers."

THE CHAIRMAN then presented the Medal to Lieutenant-Colonel Dunlop amidst applause.

THE SECRETARY: The Council have awarded a special Third Prize this year which has been won by Brevet-Major J. K. Edwards, M.C., Scots Guards, who is serving in Egypt.

The Essays sent in by Major L. A. W. B. Lachlan, *p.s.c.*, The Gloucestershire Regiment, and Lieutenant O. L. Jones, The Cheshire Regiment, were Honourably Mentioned.

Fourteen Essays were received.

VOTE OF THANKS TO THE RETIRING CHAIRMAN.

GENERAL SIR ROBERT WHIGHAM, G.C.B., K.C.M.G., D.S.O.: I have the very pleasant duty of proposing the next resolution. I need hardly remind you how busy Lord Trenchard is kept and what a weight of responsibility rests on his shoulders. In spite of all that, he has made time throughout the past year to take the very greatest personal interest in the affairs of the Institution. He has seldom missed being present to preside at a Council Meeting, greatly to the advantage of our deliberations. I now ask you to accord him a very hearty vote of thanks.

ADMIRAL SIR R. G. O. TUPPER, G.B.E., K.C.B., C.V.O.: I have great pleasure in seconding the resolution. I do not think that this Institution has ever had the honour before of being presided over by the Chief Commissioner of the Metropolitan Police. It is rather a noteworthy fact.

The resolution was carried by acclamation.

THE CHAIRMAN: I thank you for the way in which this resolution has been proposed and received. Personally I feel very honoured that I was the first Air Force Officer elected Chairman of this great Institution, and I am very proud of that fact. Thank you, Gentlemen.

The Meeting then terminated.

GEORGE HOW *SHIRTMAKER.*

BROWN'S ARCADE, REGENT STREET, W.

Finest quality shirts
at investment prices.

NAVAL · MILITARY · CLUB · COLOURS

PATTERNS AND PRICES SENT FREE OF CHARGE ON REQUEST.

NOW READY.

THE

CAVALRY JOURNAL

Published under the authority of the Army Council, under the direction of Field-Marshal the Viscount ALLENBY, G.C.B., etc. (Colonel Life Guards and 16th/5th Lancers), assisted by Lieut.-General Lord BADEN-POWELL, G.C.B., G.C.V.O., etc. (Colonel 13th/18th Hussars, Field Marshal Sir P. W. CHETWODE, Bt., G.C.B., K.C.M.G., D.S.O., Major-General A. E. W. HARMAN, C.B., D.S.O., A.D.C., etc., and Major-General T. T. PITMAN, C.B., C.M.G. (Managing Editor).

PUBLISHED QUARTERLY, Price 5s. net.

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CONTENTS.

Field Marshal Earl Haig Riding "Poperinghe" in France, 1917 (*Frontispiece*). Editorial. The Cavalry in France, August-November, 1918. Part I. (*Maps*). By Lieut.-Colonel T. Preston, M.C., T.D., Yorkshire Hussars. Judging in the Show-Ring. By Lieut.-Colonel Sidney G. Goldschmidt. Lake and Victory (Monson's Retreat): By Colonel E. B. Maunsell, Late 14th P.W.O. Scinde Horse. A Spy Story. By Major H. C. H. Robertson, D.S.O., Australian Staff Corps. Mechanized Forces. By Major George S. Patton, Jr., 3rd Cavalry. (*By permission of U.S.A. Cavalry Journal*). Seeds. (A True Story). By Lieut.-Colonel Ardern Beaman. Modern Cavalry Head-dresses. (*Illustrated*). By Lieut.-Colonel J. E. N. Ryan, T.D. Cavalry in the Great War: Battle of the Marne. Part III. By Lieut.-Colonel A. G. Martin, formerly 6th Dragoons, German Army; The Career of a Insubordinate Officer. By Captain E. W. Sheppard, O.B.E., M.C., R.T.C. Sword Training. (*Illustrated*). By Captain G. T. Wheeler, P.A.V.O., Cavalry F.F. The Ramle Vale Hounds. (*Illustrated*). By R. G. B. Spicer, M.C., Joint Master. Principles for the Employment and Command of Independent Cavalry Formations. By Count Schack (Retired Colonel). (*By permission of the "Militar-Wochenblatt"*). The Haig Statue. (*Illustrated*). Notes. Home and Dominion Magazines. Foreign Magazines. Recent Publications. Sporting News—India.

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